CADIZ GROUNDWATER STORAGE
AND
DRY-YEAR SUPPLY PROGRAM

Final Environmental Impact Report
Final Environmental Impact Statement
Public Participation and Response to
Comments on the Draft EIR/EIS
Volume II
SCH. No. 99021039



MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

REPORT NO. 1174

U.S. Department of the Interior
Bureau of Land Management



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COVER SHEET

FINAL ENVIRONMENTAL IMPACT REPORT
FINAL ENVIRONMENTAL IMPACT STATEMENT
CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM
SAN BERNARDINO COUNTY, CALIFORNIA

LEAD AGENCIES:

The Metropolitan Water District
of Southern California
Los Angeles, California

U.S. Department of the Interior
Bureau of Land Management
Riverside, California

COOPERATING AGENCIES:

U.S. Department of the Interior
National Park Service

U.S. Department of the Interior
U.S. Geological Survey

PROPOSED ACTION:

Construction and operation of the Cadiz Groundwater Storage and Dry-Year Supply Program (Cadiz Project) including a groundwater monitoring and management program, amendment of the California Desert Conservation Area (CDCA) Plan for an exception to the utility corridor requirement, and issuance of associated right-of-way grants and permits.

For further information, contact Metropolitan or BLM at:

Metropolitan Water District
Water Resources Management Group
P.O. Box 54153
Los Angeles, California 90054-0153
Attention: Mr. Jack Safely (213) 217-6981

Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, California 92507-0714
Attention: Mr. James Williams (909) 697-5390

DESIGNATION:

Final EIR/EIS

ABSTRACT:

In February 1999, Metropolitan issued a Notice of Preparation of an EIR for the Cadiz Project which would be constructed and operated by Metropolitan in the Cadiz and Fenner Valleys of the eastern Mojave Desert, San Bernardino County, California. The BLM determined that an EIS would be required as the proposed action includes an amendment of the CDCA Plan for an exception to the utility corridor requirements and grant(s) of right-of-way across federal lands. The BLM issued a Notice of Intent to Prepare an EIS for the proposed action in March 1999. In May 1999, the BLM issued a Notice of Public Meeting and extension of the scoping comment period. The Draft EIR/EIS was published in November 1999 with a 104-day public review period that ended in March 2000.

Because numerous comments raised questions regarding groundwater management issues, a Supplement to the Draft EIR/EIS was prepared to provide additional information and to present the Groundwater Monitoring and Management Plan (Management Plan) that has been incorporated into the proposed project. The Management Plan will govern the water storage and extraction operations in the affected groundwater basins to ensure that project operations will not result in any unacceptable adverse impacts to groundwater resources or air quality. The Supplement to the Draft EIR/EIS was circulated for an 80-day public review period that ended in January 2001.

The Cadiz Project is proposed by Metropolitan who is acting in partnership with the private company Cadiz Inc. The project will involve construction and operation of a 35-mile pipeline for conveying water between the Iron Mountain Pumping Plant on the Colorado River Aqueduct and the Cadiz/Fenner area, a Cadiz Pumping Plant at Metropolitan's existing Iron Mountain Pumping Plant facility, 390 acres of spreading basins for percolation of Colorado River water into the groundwater basin in the Cadiz/Fenner area, a wellfield for extracting stored Colorado River water and indigenous groundwater, and associated power poles and line along the conveyance pipeline and in the wellfield.

This Final EIR/EIS contains comments received on the Draft EIR/EIS and the Supplement to the Draft EIR/EIS, detailed responses to those comments, and integrates the information contained in the Draft EIR/EIS and Supplement to the Draft EIR/EIS with revisions as appropriate in response to comments. The Final EIR/EIS is also available for review on request at the Metropolitan and BLM offices and at the following public libraries:

- Metropolitan Water District
  700 North Alameda Street
  Los Angeles, California 90012

- Bureau of Land Management
  6221 Box Springs Boulevard
  Riverside, California 92507

- Bureau of Land Management
  101 West Spikes Road
  Needles, California 92363

- Norman Feldheym
  Central Library
  555 West 6th Street
  San Bernardino, California 92410

- Needles Branch Library
  1111 Bailey Avenue
  Needles, California 92363

- Twentynine Palms Branch Library
  6078 Adobe Road
  Twentynine Palms, California 92277

- Barstow Branch Library
  304 East Buena Vista Street
  Barstow, California 92311

This Final EIR/EIS has been approved for public distribution.

SEP 13 2001

Tim Salt
District Manager
California Desert District
U.S. Bureau of Land Management

Date

SEP 14 2001

Stephen N. Arakawa
Manager, Water Resources Management Group
Metropolitan Water District of Southern California

Date

The following technical reports and documents for the Cadiz Project are available:

- Final Environmental Impact Report/Environmental Impact Statement (September 2001)
- Public Participation and Response to Comments on the Draft EIR/EIS (September 2001)
- Public Participation and Response to Comments on the Supplement to the Draft EIR/EIS (September 2001)
- Groundwater Monitoring and Management Plan (September 2001)
- Draft EIR/EIS Public Participation (November 1999)
- Environmental Planning Technical Reports:

    - Project Feasibility and Facilities (November 1999)
    - Groundwater Resources (November 1999)
    - Biological Resources (November 1999)
    - Cultural Resources (November 1999)

The Final EIR/EIS shall govern over the Environmental Planning Technical Reports in the event of any discrepancies between the documents.

The Final EIR/EIS and technical reports are available for review at the Metropolitan Water District office located at 700 North Alameda Street, Los Angeles, California and at the BLM offices in Needles (101 West Spike's Road, Needles, California) and Riverside (6221 Box Springs Boulevard, Riverside, California).

VOLUME II
PUBLIC PARTICIPATION AND RESPONSES TO COMMENTS ON THE DRAFT EIR/EIS

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SECTION 1

SUMMARY OF PUBLIC PARTICIPATION ON THE DRAFT EIR/EIS

The Metropolitan Water District of Southern California (Metropolitan) in conjunction with the Bureau of Land Management (BLM) has carried out a public outreach process for the Cadiz Project in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) requirements for public notification and participation. The Public Participation volume of the Draft Environmental Impact Report/Statement (Draft EIR/EIS) addressed the public scoping process conducted prior to the publication of the Draft EIR/EIS. This volume of the Final EIR/EIS provides an overview of the public participation program conducted for the Draft EIR/EIS, comments received and responses to comments.

The public participation process was designed to inform the public and solicit public comments on the proposed project in compliance with CEQA and NEPA requirements. The public participation process included the following components:

- Publication of the Notice of Availability of the Draft EIR/EIS,
- Circulation of the Draft EIR/EIS for public and agency review,
- Conducting three public hearings on the Draft EIR/EIS, and
- Responding to comments received on the Draft EIR/EIS.

The Notice of Availability of the Draft EIR/EIS (NOA) was published in the Federal Register and in two newspapers in the project area. Additionally, it was posted with the San Bernardino County Clerk of the Board of Supervisors and sent to an extensive mailing list of potentially interested parties. Numerous individuals, organizations, and public agencies were also mailed a copy of the Draft EIR/EIS. The mailing list for the NOA and the Draft EIR/EIS included BLM's list of those who have expressed interest in its management of Southern California desert lands, those who participated in the scoping process for the project, as well as local, regional, State, and federal public agencies and officials.

Metropolitan and the BLM circulated the Draft EIR/EIS for public review from November 26, 1999 through March 8, 2000. The NOA provided a public notice that the Draft EIR/EIS had been completed and that Metropolitan and the BLM were accepting public comments on the document. The NOA also indicated how a copy could be obtained for review. A copy of the NOA of the Draft EIR/EIS is provided in Appendix A of this volume.

Metropolitan and BLM held three public hearings during the public review period to accept verbal and written comments on the Draft EIR/EIS. Public testimony at those hearings was taken by a court reporter. Transcripts of the hearings are provided in this volume in Section 2. The hearings were held at Cadiz on December 15, 1999, Twentynine Palms on December 15, 1999, and Needles on December 16, 1999.

Numerous written comment letters on the Draft EIR/EIS were received during the public review period and are also included in this volume.

Responses to the written and oral comments received on the Draft EIR/EIS at the public hearings and by letter are included in the responses to comments portion of this volume (Section 3). Each hearing transcript including written comments handed in and comment letters received during the comment period are included in the comments received portion of this volume (Section 2). The transcript from each meeting is numbered (M1, M2, etc.) and each comment within the transcript is bracketed and numbered (M1-1, M1-2, etc.) Comment letters are organized and coded as received from federal (F),

State (S), or regional/local agencies (R), businesses (B), groups/organizations (G), and the general public (P). Each letter received is numbered as well (e.g. F1) and the comments within each letter are bracketed and numbered (e.g. F1-1, F1-2).

Responses to comments utilize the coding system described above. Additionally, where similar or related comments were made by a number of commentors, a master response was prepared to provide a comprehensive response to that issue. The master responses are included in Section 3 of this volume. Where a comment resulted in modification to the text of the Final EIR/EIS, this is noted in the response. The Final EIR/EIS for the Cadiz Groundwater Storage and Dry-Year Supply Program incorporates all the necessary changes based on the comments received during the public review period.

SECTION 2

COMMENTS RECEIVED ON THE DRAFT EIR/EIS

Comment Letters Received from Federal Agencies

F1. United States Environmental Protection Agency (February 22, 2000)
F2. United States Department of the Interior, National Park Service (February 28, 2000)

Comment Letters Received from State Agencies

S1. California Department of Transportation, District 8 (December 1, 1999)
S2. California State Lands Commission (February 22, 2000)
S3. California Regional Water Quality Control Board, Colorado River Basin Region (February 22, 2000)
S4. California Department of Fish and Game (February 22, 2000)
S5. State of California Governor's Office of Planning and Research, State Clearinghouse (February 23, 2000)
S6. State of California Governor's Office of Planning and Research, State Clearinghouse (March 2, 2000)

Comment Letters Received from Regional and Local Agencies

R1. Southern California Association of Governments (February 17, 2000)
R2. Victor Valley Water District (February 25, 2000)
R3. County of San Bernardino, Economic Development and Public Services Group (March 7, 2000)
R4. Municipal Water District of Orange County (March 8, 2000)

Comment Letters Received from Businesses

B1. All American Pipeline L.P. (January 31, 2000)
B2. National Chloride Company of America (December 26, 1999)
B3. Silver Valley Realty (December 11, 1999)
B4. Claypool's True Value Hardware (December 11, 1999)
B5. Tate and Associates, for the Arizona and California Railroad (February 21, 2000)
B6. SF Pacific Properties, Inc. (March 8, 2000)

Comment Letters Received from Groups and Organizations

G1. National Parks Conservation Association (February 14, 2000)
G2. Morongo Basin Conservation Association, Inc. (February 18, 2000)
G3. California Farm Bureau Federation (February 22, 2000)
G4. California/Nevada Regional Conservation Desert Committee (February 25, 2000)
G5. Sierra Club (no date)
G6. Desert Survivors (March 5, 2000)
G7. San Bernardino Valley Audubon Society (March 6, 2000)
G8. Red Rock Audubon Society (March 6, 2000)
G9. California/Nevada Regional Conservation Desert Committee (March 7, 2000)
G10. California Native Plant Society (March 8, 2000)
G11. National Parks Conservation Association and The Wilderness Society (March 8, 2000)
G12. People Against Radioactive Dumping (March 8, 2000)
G13. People Against Radioactive Dumping (March 8, 2000)
G14. People Against Radioactive Dumping (March 8, 2000)
G15. Desert Watch (January 18, 2000)
G16. Environmental Defense Fund (March 8, 2000)
G17. Desert Survivors (February 12, 2000)

Comment Letters Received from Members of the General Public

P1. A Friend of the Desert (December 28, 1999)
P2. Mr. Ramon A. Mendoza (January 20, 2000)
P3. Mrs. Mark Brubaker (December 9, 1999)
P4. Marjorie M. Mikels (February 21, 2000)
P5. Jeff Wright (February 22, 2000)
P6. Kevin Emmerich and Laura Cunningham (February 25, 2000)
P7. Christine Carraher and Jerry Smith (February 29, 2000)
P8. William T. Mccarvill (March 2, 2000)
P9. Alan Siraco and Amanda K. Roze (March 3, 2000)
P10. Dennis Bell (March 4, 2000)
P11. Stan Haye (March 4, 2000)
P12. Carol A. Landry (March 5, 2000)
P13. Ingrid Crickmore (March 6, 2000)
P14. Hanafi Russell (March 7, 2000)
P15. Jerry Smith (March 8, 2000)
P16. Carol A. Wiley (March 6, 2000)
P17. Barry and Leslie Melics (March 16, 2000)

Transcripts and Written Comments Received at Public Hearings

M1. Public Hearing at Cadiz, December 15, 1999
M2. Public Hearing at Twentynine Palms, December 15, 1999
M3. Public Hearing at Needles, December 16, 1999
M4. Written Comments Received at Public Hearings

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

FEB 2 2 2000

F1

James Williams
Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714

Dear Mr. Williams:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Report/Environmental Impact Statement (DEIS) for the Cadiz Groundwater Storage and Dry-Year Supply Program, San Bernardino County, California. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's (CEQ) NEPA Implementation Regulations at 40 CFR 1500 - 1508, and Section 309 of the Clean Air Act.

The DEIS evaluates alternatives for conveying water from the Iron Mountain Pumping Plant on the Colorado River Aqueduct to a spreading basin in the Cadiz and Fenner valleys for storage of Metropolitan Water District's (MWD) water supplies during wet years. During dry years, the stored water, along with indigenous groundwater, would be extracted by wells and transferred to the Colorado River aqueduct for conveyance to MWD's service area. The proposed project, the Eastern Alternative, involves construction of 35-mile pipeline east of the Iron Mountains and north through Cadiz Valley. The project also involves construction of spreading basins in Cadiz and Fenner valleys; power lines, pumping plants, and service roads along the pipeline; and an extraction well field in Fenner Gap. Other alternatives include a western alignment alternative, combination alignment alternative, an eastern/canal alternative, and no action.

We have rated this DEIS as EO-2 -- Environmental Objections-Insufficient Information (see enclosed "Summary of Rating Definitions and Follow-Up Action"). We have strong objections to the proposed project because it would result in significant adverse impacts to air quality, and BLM has not conducted a conformity determination required pursuant to 40 CFR 93.153. It also appears that the project would adversely affect many ephemeral washes, which may be waters of the U.S. The DEIS, however, does not identify or include an analysis of the least environmentally damaging practicable alternative pursuant to 40 CFR 230 (Clean Water Act Section 404(b)(1) Guidelines). The project would also adversely affect sensitive habitats, but the DEIS does not provide sufficient specific information regarding mitigation to determine the full impact to these resources.

F1-1

F1-2

F1-3

The DEIS does not contain sufficient information for EPA to fully assess the impacts that should be avoided in order to fully protect the environment. The Final Environmental Impact Statement (FEIS) should include additional information regarding groundwater modeling and impacts, impacts to waters of the U.S. and other sensitive habitat, and mitigation and monitoring. F1 F1-

In addition, in light of the omission of a conformity discussion in this DEIS, we recommend that BLM issue its draft conformity determination and allow for the 30-day comment period in accordance with 40 CFR 93.156(b) *before* publishing the FEIS. The FEIS should include a conformity discussion and describe the changes from the DEIS and update the discussion of impacts on the environment and public health. CEQ regulations (40 CFR 1502.9) require a supplement to a draft or final EIS when there are substantial changes to a proposed action relevant to environmental concerns or where there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impact. If BLM can make a positive conformity determination with no significant changes to the proposed project, a supplemental draft EIS may not be needed. However, should significant changes to the project be necessary in order to make a positive conformity determination or for any other major project changes, we recommend that BLM seriously consider issuing a draft supplemental EIS. Our specific comments on the DEIS are enclosed. F1-

We appreciate the opportunity to review this DEIS. Please send a copy of the FEIS to this office when it is officially filed with our Washington, D.C., office. If you have any questions, please contact David Farrel, Chief, Federal Activities at (415) 744-1584, or Jeanne Geselbracht of his staff at (415) 744-1576. F1-

Sincerely,

Enrique Manzanilla, Director
Cross-Media Division

003227

Enclosures

cc: Dirk Reed, Metropolitan Water District
Dave Spath, California Department of Health Services
Charlse Fryxell, Mojave Desert Air Quality Management District
U.S. Army Corps of Engineers - Los Angeles District
U.S. Fish and Wildlife Service - Carlsbad Field Office
Chris Stubbs, Mojave National Preserve

General Comments

The proposed project is located in the California Desert Conservation Area (CDCA), which was expressly designated by Congress for the purpose of providing for protection of this exceptional place, which is "extremely fragile, easily scarred, and slowly healed" (P.L. 94-579, Sec. 601). Congress was well aware of the need for protection of the CDCA's many important environmental resources because of its unique location adjacent to a large metropolitan area. We urge BLM to take great care in considering the potential impacts of the proposed project. We believe the DEIS lacks important information, which is necessary for informed decisionmaking. Our specific comments follow. F1-8

Air Quality

DEIS Table 5.6-3, Summary of Estimated Construction Emissions, indicates significant levels of PM10 (particulate matter smaller than 10 microns), ROC (reactive organic compounds), NOx (oxides of nitrogen), CO (carbon monoxide), and SOx (sulfur dioxide) emissions. The DEIS also states that, even after mitigation measures are implemented, the project would result in significant impacts to air quality for these criteria pollutants. More importantly, the DEIS (pp. 5-117,118) states that the Cadiz Project was not included in the Air Quality Attainment Plan (AQAP) and the action alternatives would all contribute to delays in timely attainment of air quality standards in the Mojave Desert Air Quality Management District (AQMD). F1-9

Under Section 176(c) of the Clean Air Act, no federal agency may approve or support in any way any activity that does not conform to an air quality implementation plan. The 1990 Clean Air Act Amendments further define conformity to mean that the activity will not "(i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standards or any required interim emission reductions or other milestones in any area."

The DEIS (p. 5-109) states that the project would be located in a nonattainment area for ozone and PM10. It appears, however, that the project may *not* actually be in a federal nonattainment area for ozone. However, because the project would be in a federal nonattainment area for PM10, its emissions will be subject to General Conformity Rule found at 40 CFR 93.150 [and adopted by Mojave Desert AQMD Rule 2002 (64 FR 19916)]. The Clean Air Act conformity regulations initially require a federal agency to determine if the estimated emissions from a project are above the de minimus levels stated in the regulations. For example, in a PM10 serious nonattainment area, that level is 70 tons per year. If the projected emissions are below these levels, the project is presumed to conform by law. It appears from the information presented in the DEIS that the estimated project emissions are above the de minimus level for PM10. Therefore, BLM must make a conformity determination for the project using the criteria delineated in the regulation. We recommend that BLM coordinate with the Mojave Desert AQMD.

For future projects, we recommend that BLM issue the draft conformity determination concurrent with the DEIS so that any necessary modifications to the proposed project needed for conformity purposes can be addressed at the DEIS stage. In light of the omission of a conformity discussion in this DEIS, we recommend that BLM issue its draft conformity determination and allow for the 30-day comment period in accordance with 40 CFR 93.156(b) *before* publishing the FEIS. The FEIS should include a conformity discussion. Should significant changes to the project be necessary in order to make a positive conformity determination, we recommend that BLM seriously consider issuing a draft supplemental EIS. F

Water Resources

The DEIS concludes saline water (brine) interface movement of no more than about 2000 feet toward or away from the Project wellfield (p.5-97). It is not clear whether this analysis takes into account the possibility of water level declines beneath Bristol Dry Lake. Wellfield extraction activities could result in a reduced quantity of groundwater recharge (underflow) to Bristol Dry Lake. In this case brine could move toward and be captured by the Project wellfield. A more rigorous evaluation of natural groundwater underflow to Bristol Dry Lake would help to guard against this. The approach to Water Quantity Impacts (p.5-99) and Groundwater Supply (p.5-100) contained in the DEIS relies on a deference to vague modeling results. As such, the DEIS does not provide the reader an opportunity to evaluate the appropriateness of the modeling methods used, the adequacy of any supporting raw data nor the validity of the conclusions drawn with the modeling. To redress this, appropriate field studies might be conducted that speak directly to infiltration and groundwater recharge phenomena in the Bristol, Fenner and Cadiz Watersheds. It is also possible that relevant studies of the Mojave Desert already exist in the scientific literature. Finally, the DEIS presents a series of operational scenarios (p.5-88) depending on a range of indigenous groundwater extraction (transfer) quantities. It would be helpful if additional scenarios could be developed that take into account significantly reduced indigenous groundwater extraction quantities. These could be a foundation for a mitigative project design that addresses the possibility of water level declines beneath Bristol Dry Lake and any revised estimates of underflow to that lake. F1 F1 F1

The DEIS states that there will be a two way transfer of contaminants (p.5-107). It is likely that the proposed facility will result in a degradation of source water quality. Since the use of contaminated water as source water might pose a greater human health risk than otherwise, some steps to evaluate this risk seem appropriate. The DEIS does not systematically evaluate the possible human health impacts of the mixed source water. Thresholds relating to groundwater quality (DEIS, p.5-83) could be expanded to include parameters like the identification of potential contaminant sources and hydrogeologic (physical) barrier effectiveness. With this, more informed conclusions could be drawn about possible mitigation and pollution prevention steps to protect source water (and reduce human health risk). For example, the DEIS (p.5-106) indicates that monitoring would specifically address only total dissolved solids and perchlorate. The presence of additional contaminants (arsenic, bromide, nitrate, vineyard and citrus contaminants) is acknowledged in the DEIS (p.5-99, 5-66, 5-95). Also, the overall approach to monitoring F1

apparently relies on existing public and private wells (p.5-106). This type of well configuration might be haphazard and not take in to account adjacent land uses (as potential contaminant sources) or the hydrodynamics of the source water spreading and recovery. Without evaluating human health impacts or considering pollution prevention steps, unexpected contaminants might inadvertently be conveyed back to the aqueduct. F1-13

The DEIS indicates that most of the mixed source water, including contaminants, will be returned to the aqueduct (p.5-95). This implies the mixed source water will be contained within the immediate area of the wellfield/ spreading grounds and then captured and conveyed back to the aqueduct. Some explanation should be given as to how the hydrodynamic control needed for this level of containment will be achieved. The task seems to be complicated by an apparent temporal separation between source water storage and extraction activities (DEIS, p.5-88). If containment cannot be achieved, the excursion of contaminants to areas in hydraulic communication with the project area (and any drinking water intakes therein) area might occur. F1-14

The DEIS discusses the potential for pesticides and other hazardous substances to be present in the project area. An analysis of the groundwater, however, is not presented in the DEIS, so it is unclear whether pesticides from nearby agricultural operations or hazardous waste from historical military operations are present in the indigenous groundwater. The FEIS should provide this information and discuss the potential human health impacts of any pesticides found in the water. F1-15

The monitoring and mitigation measures in section 5.5.5 of the DEIS are extremely vague. For example, the DEIS does not indicate how often some monitoring activities would occur, who would enforce them, or what parameters groundwater would be analyzed for in the wellfield, spreading basin, and more remote monitoring wells. In addition, the DEIS does not indicate any action levels for mitigation or identify who would enforce the mitigation measures that are briefly mentioned in the DEIS. Furthermore, no details are provided regarding how the project storage and/or withdrawal schedules would be modified should this mitigation measure be deemed appropriate. According to the DEIS (p. 5-105), a comprehensive Groundwater Monitoring and Management Plan would be prepared by MWD. However, a mitigation plan is not mentioned. The FEIS should include detailed monitoring and mitigation plans so that decisionmakers and the public are fully informed regarding these important components of the project. F1-16

Figure 5.8-1 in the DEIS indicates that numerous washes would be diverted around the spreading basin and wellfield or crossed by the conveyance pipeline. The DEIS, however, does not give any information regarding waters of the U.S. located within the project area. MWD should coordinate with the U.S. Army Corps of Engineers to determine if the proposed project requires a Section 404 permit under the Clean Water Act. Section 404 regulates the discharge of dredged or fill material into waters of the U.S., including wetlands and other "special aquatic sites." The FEIS should describe all waters of the U.S. that could be affected by the project alternatives, including past impacts. The discussion should include acreages and channel lengths, habitat types, values, and functions of these waters. F1-17

If a permit is required, EPA will review the project for compliance with Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the Clean Water Act ("404(b)(1) Guidelines"). Pursuant to 40 CFR 230, any permitted discharge into waters of the U.S. must be the least environmentally damaging practicable alternative available to achieve the project purpose. The FEIS should include an evaluation of the project alternatives in this context in order to demonstrate the project's compliance with the 404(b)(1) Guidelines. If, under the proposed project, dredged or fill material would be discharged into waters of the U.S., the FEIS should discuss alternatives to avoid those discharges. EPA strongly encourages early coordination with the U.S. Army Corps of Engineers. Information on waters of the U.S. is best disclosed at the DEIS stage so that the appropriateness of the proposed alternative can be evaluated in the context of the 404(b)(1) Guidelines, and relevant comments can receive responses and effect appropriate modifications in the FEIS. F1-

If a discharge to waters of the U.S. is permitted, the FEIS should discuss how potential impacts would be minimized and mitigated. This discussion should include: (a) acreage and habitat type of waters of the U.S. that would be created or restored; (b) water sources to maintain the mitigation area; (c) the revegetation plans, including the numbers and age of each species to be planted, as well as special techniques that may be necessary for planting; (d) maintenance and monitoring plans, including performance standards to determine mitigation success; (e) the size and location of mitigation zones; (f) the parties that would be ultimately responsible for the plan's success; and (g) contingency plans that would be enacted if the original plan fails. Mitigation should be implemented in advance of the impacts to avoid habitat losses due to the lag time between the occurrence of the impact and successful mitigation.

Biological Resources

It is unclear from the DEIS whether a biological assessment has been prepared for the proposed project. It is also unclear whether BLM has conducted Section 7 consultation with the U.S. Fish and Wildlife Service. The FEIS should include the biological assessment and discuss the results of the Section 7 consultation, including the biological opinion if one will be prepared. F1-

According to the DEIS (p. 5-143), Schulyler Wash, the most extensive and biologically diverse wash in the project area, is located in the proposed well field. However, the DEIS does not discuss the specific potential impacts of the well field on Schulyler or other washes in the vicinity from either construction activities, diversions, or wellfield operations. The FEIS should discuss the project's potential impacts to all affected washes, and describe the design of the Schulyler Wash diversion structure, as well as any other necessary channel diversions structures, including channel geometry and vegetation specifications. F1-

Furthermore, the DEIS does not describe how or where the sensitive habitat losses would be replaced. The FEIS should include the detailed mitigation plan for habitat replacement. This plan should: (a) identify the replacement habitat areas; (b) describe how they would be preserved and protected; (c) identify who would be responsible for selecting and implementing the compensation F1-

and ensuring its success; (d) how success would be ensured; and (e)contingency plans that would be enacted if the original plan fails. Mitigation should be implemented in advance of the impacts to avoid habitat losses due to the lag time between the occurrence of the impact and successful mitigation. FI-20

The DEIS biological resource mitigation measures do not include descriptions of how disturbed areas would be revegetated upon completion of construction. Realization of successful revegetation could take a long time in the CDCA, particularly in sand dune areas. The FEIS should include: (a) acreage and habitat type of habitat that would be restored; (b) the revegetation plans including the numbers and age of each species to be planted, and special techniques that may be necessary for planting; (c) maintenance and monitoring plans, including performance standards to determine revegetation success; (d) the parties that would be ultimately responsible for the plan's success; (e) how success would be ensured; and (f) contingency plans that would be enacted if the original plan fails. FI-21

Figure 5.8-1 in the DEIS depicts several dune areas along the pipeline corridor. Table 5.8-3 also indicates that 148.7 acres of stabilized/partially stabilized desert dunes/sand fields would be temporarily affected by the Eastern Alternative, and 16.5 acres would be permanently affected by the Eastern Alternative. The DEIS, however, does not indicate how they would be affected overall, how temporarily disturbed dune/sand field areas would be reestablished, or how disturbance would affect the ability of the dunes and sand fields to restabilize. Would special revegetation/stabilization techniques be required to restabilize these features which could become highly dynamic if disturbed? The FEIS should provide this information. In addition, the DEIS (p. 5-53) states that the potential for impact to any sand dunes in or adjacent to the project area is very remote. In light of the impacts indicated above, the FEIS should rectify this discrepancy. FI-22

The DEIS indicates that losses of Mojave Wash Scrub and Desert Tortoise habitat would be replaced at a 1:1 ratio. Losses of the stabilized/partially stabilized desert dunes/sand fields, however, would not be compensated. Dune areas could take years to recover, and it is unclear whether all dune areas would fully recover. The FEIS should discuss the likelihood and timing of successful recovery of dune areas affected by the project. We recommend that BLM require compensation for *all* permanent acreage losses of this habitat. We believe habitat losses in excess of 16.5 acres is likely and suggest that an escrow account be established to fund compensation of dune habitat losses beyond the 16.5 acres of projected permanent loss. FI-23

The DEIS indicates that invasive non-native plants would be removed from the temporary impact area after summer and winter rains (p. 5-178), and vegetation that grows in the spreading basins would be cleared approximately once a year (p. 5-116). The FEIS should discuss how plant removal would be accomplished. If pesticides would be used, the FEIS should identify the pesticides and describe their potential impacts to wildlife and groundwater, as well as how pesticide application would be monitored for proper use and adverse impacts. FI-24

United States Department of the Interior

NATIONAL PARK SERVICE
Mojave National Preserve
222 East Main Street, Suite 202
Barstow, California 92311

IN REPLY REFER TO:

28 February 2000

F2

Dirk Reed, Project Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, California 90054

Re: National Park Service Comments on *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Impact Statement* and Supporting Technical Documents

Dear Mr. Reed:

Below are comments from the National Park Service (NPS) on the *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Impact Statement* (EIS). As the *Cadiz Groundwater Resources* report is a technical appendix to the EIS, NPS also offers comments on that document.

NPS offers its comments on the EIS because of the geographical proximity of Mojave National Preserve to the Cadiz Groundwater Storage Project (Project) and because one or more key groundwater basins are shared by Mojave National Preserve and the Cadiz Project. Mojave National Preserve, a unit of the National Park System, is located approximately 15 miles north of the main Project area. Fenner Basin, which is expected to provide the primary source of natural recharge groundwater to the Cadiz Project, runs nearly 30 miles into the Mojave National Preserve, and is one of the park's major groundwater aquifers. The Cadiz Project has the potential to adversely affect the groundwater resources of Mojave National Preserve and air quality in the Preserve. F2-

This letter addresses these potential adverse impacts in four sections: (1) adequacy of the EIS; (2) air quality; (3) adequacy of the monitoring and mitigation plan; and (4) proposed changes to the Project and environmental analysis.

1. Adequacy of the EIS

A. Adequacy of the Cadiz Groundwater Resources Report F2-

The most critical element of the EIS is the analysis of the impacts of the Cadiz Project on groundwater resources in the Project area and on groundwater resources of adjacent lands, including the Mojave National Preserve. The *Cadiz Groundwater Resources* report forms the underpinnings of the groundwater impacts analysis in the EIS. The groundwater impacts analysis of the EIS will be severely flawed, if not rendered totally invalid, by a groundwater resources study that is inadequate or technically unsound. Without a sound groundwater study it is not possible for NPS to rely on the EIS to properly assess the impacts of the Project on the Mojave National Preserve.

Recently, the *Cadiz Groundwater Resources* report was critically and objectively reviewed by the U.S. Dept. of Interior Geological Survey (USGS), NPS hydrologists and water rights specialists with our Washington Office, and experts with the County of San Bernardino. Each of these groups has independently drawn the conclusion that the groundwater study conducted in support of the Cadiz EIS is seriously flawed.

The most significant flaw that the reviewers found in the study is the estimated rate of natural groundwater recharge. The EIS suggests that the project will remove no more indigenous water from the basin than is naturally recharged. The watershed model and water-balance studies presented in the EIS and the underlying groundwater study, however, overestimate the natural recharge to the basin by 5 to 25 times the values estimated by USGS. Therefore, the proposed pumping rates in the EIS call for water extraction that is greatly in excess of the amount of water that is recharged.

The USGS and the other expert reviewers also found a number of other serious flaws in the groundwater study (see attachment 1). They report that the chloride mass balance approach was not properly applied in the study and greatly overestimated water availability in the basin. The reviewers found that the evaporation rates used in the groundwater flow model were not based on sound technical grounds. They found that the amount of water currently predicted by the study to discharge at Bristol and Cadiz Dry Lakes is incorrect. The *Cadiz Water Resources* report fails to account for soil water storage and subsequent withdrawals by desert plants. Estimates of groundwater storage in the Fenner aquifer are inaccurate and misleading. F2-

These are but a few of the inaccuracies and errors found by USGS, NPS, and the County of San Bernardino in the EIS and supporting *Cadiz Water Resources* report. Such serious flaws and inaccuracies in the key component of the impact analysis invalidate the conclusions in the EIS. The EIS, therefore, does not portray an adequate description of potential impacts and must be revised. For example, the EIS does not address how water level declines will impact the dry lakes. The EIS overestimates the size of the groundwater basins. The EIS fails to point out that isotopic data indicate that the groundwater in the desert basins was recharged thousands of years ago during a much wetter climate.

There are major discrepancies between the existing groundwater study and what the USGS and other reviewers have found. NPS is concerned that the groundwater study supporting the EIS is so technically flawed that it is not possible for the EIS to adequately evaluate the impacts of the Project on the groundwater resources of Mojave National Preserve.

B. Specific Comments on the EIS

F2-

The following are specific comments from NPS concerning the EIS:

Public Meetings – The public meetings were held approximately two weeks after receipt of the EIS. There was not sufficient time to review the EIS before the meetings. F2-

Index – 40 CFR 1502.10 states that EISs must have an index. The Cadiz EIS has no index. F2-

Executive Summary

Page ES-32 - Add aesthetics as an impact. The scars from the construction activities, and the view of the well field and spreading basins would change the views of the desert. F2-6

Page ES-35, Cumulative Impacts – "There are no known closely related past, present, and reasonably foreseeable probable future projects in the Cadiz Project Area." This statement in the EIS is misleading. Please see NPS comments on Cumulative Impacts below. F2-7

Page ES-39, BLM Responsibilities – In addition to permitting the project, BLM also has the option of not permitting the project and not granting a right-of-way, especially since the CDCA plan does not have a utility corridor compatible with the Cadiz project. This portion of the EIS appears pre-decisional. F2-8

1.0 Introduction

Page 1-6, column 1, para. 5, last line – Same comment as above. BLM does not have to grant an amendment to the CDCA plan. F2-9

3.0 Formulation and Evaluation of Project Alternatives

Section 3, Formulation and Evaluation of Alternatives – Several alternatives that were eliminated from detailed consideration entail using lands either within or immediately adjacent to Joshua Tree National Park (see pages 3-6 – 3-8 and the Executive Summary). A project of this type within any unit of the National Park System is inconsistent with the land use of the area (as stated in the EIS) and would likely not be permitted. To include such areas in the EIS analysis seems a "red herring" attempt to make the project appear more environmentally sensitive. If there is a true concern for NPS resources, then the project should not be located 15 miles from the Mojave National Preserve, also a unit of the National Park System. NPS has concerns about the potential impacts of this project to Mojave National Preserve. Why was no mention made of the Preserve in the formulation and selection of alternatives? This seems to be an oversight. F2-10

Page 3-4 - Add that an existing land use is the Mojave National Preserve. F2-11

Page 3-12, Section 3.5.2 – This section states that, in the selection of alternatives, environmental issues were considered including "impacts to adjacent public uses of park lands." If so, why was no mention made or consideration given to the Mojave National Preserve? By the standards established in the EIS, the project should be located elsewhere. F2-12

Page 3-16, column 2, first para., line 12 – The EIS is inadequate with respect to water rights essential for the proposal to be viable. Evidence of Cadiz, Inc.'s legal rights to the entire amount of water proposed to be removed, under each alternative, should be provided. Further, the EIS needs a discussion of the status of water rights related to the Project and adjacent lands, including wilderness areas and Mojave National Preserve. F2-13

Page 3-20 - Please cite references to the theory of "mounding" and "lateral movement of water". Has this been observed in other locations? F2-14

Section 3, Alternatives, General Remarks – The alternatives to the project are nothing more than minor variations on the same theme except for the no-project alternative. All of the other alternatives contemplate the same water storage and retrieval plans with only the water conveyance route to the pumping plant being the variable. These are minor, project-level variations, not alternatives. A reasonable range of alternatives has not been evaluated as is required under the National Environmental Policy Act (NEPA) (40 C.F.R. 1502.14, 1505.1[e]). The current range of alternatives is far too narrow. F2

Please evaluate, in detail: 1) other locations for the project, 2) using the Fenner, Bristol, and Cadiz aquifers for storage of Colorado River water only (i.e., no take of indigenous water), and 3) taking a significantly reduced amount of indigenous water, with the amount reflecting USGS estimates for natural recharge to the area. The analysis of these new alternatives should be carried through Section 5 (Affected Environment, Impacts, and Mitigation). Please explicitly discuss a rationale should these alternatives be found rejected from detailed analysis. F2

The EIS should also include an alternative which limits or eliminates the amount of indigenous water that will be drawn from the basins and includes additional conservation measures to make up for any deficit in dry years. The EIS declines to consider water rationing, even on a limited basis, as a means for reducing water demand during dry years, except in situations where water shortages have reached critical levels. Public education, xeriscaping, lawn watering on every third day and other water conservation measures have allowed the City of Denver to reduce its average daily per capita water consumption by 11.8 percent in less than ten years. An 11.8 percent decrease in dry-year demand for water in the Metropolitan Water District (MWD) service area would translate into a savings of nearly 500,000 acre feet per year. While the BMP program for southern California is expected to reach a similar goal in 20 years without rationing, there is no consideration of the impact of xeriscaping, increasing water rates during dry years, and every-third-day lawn watering or other similar limited preemptive rationing measures. Adding these items to the list of BMPs could reduce consumption even further and, at very least, negate or reduce the need for the Cadiz project to pump indigenous water from the project area. Thus, the EIS has neglected a significant alternative means of addressing dry year shortfalls in lieu of pumping out indigenous water from groundwater basins that are not even located within MWD's service area. F2

Page 3-18, column 1, para. 2, line 2 – Based on reviews conducted by the NPS, USGS, and San Bernardino County, the NPS disagrees with the statement that "the aquifer system has an estimated annual recharge of approximately 30,000 acre-feet per year." USGS Maxey-Eakin Models suggest that the annual recharge for the area is approximately 2,500 acre-feet. This is an order of magnitude less than the EIS estimates. Since the Cadiz Project plans to take the amount of indigenous water that is equal to the annual recharge, these differences in recharge rates are a significant concern to the NPS. Please modify the EIS and the project proposal to reflect revised recharge rates. F2

Page 3-20, column 2, last para., lines 3-9: "Spreading basins in the *upper reaches of Fenner Valley* (emphasis added) were initially considered but were rejected because they would be constructed on relatively steep slopes, would require more grading and cause more habitat disturbance...". The upper reaches of Fenner Valley lie completely within the borders of the Mojave National Preserve, yet no mention is made of this unit of the National Park System in the decision to not locate facilities there. Not only would the project disrupt a protected ecosystem, it would be incompatible with the current land use. F2-

Page 3-40, Section 3.8.4 - The selection of the preferred environmental alternative should be reexamined. The EIS cites that by selecting the no action alternative, environmental impacts would result from the potential lowering of the water table within MWD's service area. No mention is made, however, of the potential lowering of the project site's water table and its subsequent environmental impacts to the immediate area and the adjacent Mojave National Preserve. F2-20

4.0 Description of Project Alternatives

Page 4-63 – Since the EIS discounts the no action alternative based upon the impact to a groundwater basin, it should also discount the proposal for its potential impact to the Fenner Basin. F2-21

In the next paragraph (Conveyance and Storage Deficits), the no-action alternative will not *cause* an increase in the deficit. With the no-action alternative there is a projected deficit. The projected deficit is caused by increase water consumption without any conservation measures being imposed. The no-action alternative could not cause an impact because there would be no action. F2-22

Page 4-63 - Including the construction of a desalination plant should not be included with the no action alternative. It is a separate action and should be considered as a separate alternative. F2-23

5.0 Affected Environment, Impacts and Mitigation

Page 5-17, column 2, para. 2, line 4 – Since the Cadiz project is not in conformance with the CDCA plan, BLM also has the option of not permitting the project. F2-24

Page 5-16 – The EIS states that the project impact would be limited to small areas. Please quantify. F2-25

Page 5-44 - It is incorrect to say that a fault is considered to be not potentially active. Inactive faults can have the potential to become active. F2-26

Page 5-46 - "Future seismic activity in the Cadiz Project area would not be expected to have any impacts on the boundaries between individual groundwater basins or to create channels for movement of groundwater between basins". This statement should be clarified with a statement that major seismic activity could cause changes to groundwater basins and its channels. F2-27

Page 5-58 – The potential effects of subsidence need to be addressed in greater detail in this chapter. The EIS states that the topic is addressed more fully under mitigation measure WR-1, but nowhere in the EIS are the impacts fully described. F2-28

Page 5-65, Section 5.4.6, Level of Significance after Mitigation – Subsidence is not listed here as a significant impact after mitigation, yet on page 5-52 a project is said to have a "significant adverse impact" if it results in land subsidence. The EIS further states that mitigation measure WR-1 on page 5-105 will reduce the potential subsidence effects to below significant. However, WR-1 calls for monitoring and subsequent remedial actions if the monitoring shows subsidence of more than one foot per mile. Whatever corrective action is taken after this monitoring cannot prevent the problem because the subsidence would have already occurred. Therefore, the impact must be significant under the criteria established in the EIS. Remedial actions listed on F2-29

page 5-106 include repairing damaged structures and modifying the project storage and extraction schedules. How does repairing damaged structures prevent subsidence or mitigate this impact to below significance? How would the project storage and extraction schedules be modified? Would they be modified to prevent further subsidence? Why isn't cessation of extraction one of the remedial measures listed for mitigation of subsidence? Please modify sections 5.4 and 5.5 to indicate that impacts associated with subsidence are significant after mitigation. F

Page 5-66, column 1 – There is little discussion of the Mojave National Preserve throughout the EIS, despite the fact that it is a 1.6 million-acre unit of the National Park System located just 15 miles north of the project area. The description of the physiography and topography here is one such place that the Preserve could be described. In addition, please include in the EIS a map similar to the one on page 5-67, but showing the southern boundary of the Preserve. F

Page 5-80, Groundwater Recharge – The EIS states that groundwater recharge occurs at the upper elevations of the basin. Please state that this is within the Mojave National Preserve. F2

Page 5-80, column 2, para. 1, lines 9-11 – The EIS states that "the occurrence of active groundwater replenishment in the Bristol, Cadiz, and Fenner watersheds is supported by...isotopic evidence for a geologically recent age (Holocene) for the groundwater." The USGS, however, has determined that isotopic data from this EIS and other studies suggest that there is limited recharge to these basins under present day climatic conditions. Indeed, groundwater in these desert basins was recharged thousands of years ago. To say that isotopic data suggest there is "active groundwater replenishment" is a misrepresentation of the scientific evidence. F2

Page 5-80 – The EIS states that there was no significant decline in the groundwater table from 1983-1998. This implies that there was some decline. What was the decline? If the recharge is greater than the extraction, why is there a decline? Please explain. F2

Page 5-81, Groundwater Discharge - The EIS reports that current ground water withdrawal at the Cadiz site is 5,000 to 6,000 acre-feet per year and then reports that no significant declines have resulted. What is the extent of the monitoring network and data from which this conclusion was drawn? Also, what is considered a "significant" decline? F2

Page 5-83, Section 5.5.2 – The threshold of significance for depletion of groundwater contains too many conditions. It should not be tied to impacts on nearby well production and permits for existing or planned uses of the groundwater. Depletion of groundwater resources at rates in excess of natural recharge should be the threshold of significance. This threshold should be determined quantitatively after the natural recharge rate has been established accurately. If this is not possible, the threshold of significance should be based on monitoring results which indicate a defined lowering of elevation of the groundwater table that signifies that the depletion rate has exceeded the natural recharge rate. F2

Page 5-89 – The table depicting project operational scenarios raises questions. What agency is responsible for regulating "put" and "withdraw"? What assurances are there that water will be "put" for a number of years before it is withdrawn? The EIS states that water will be "put" in wet years and "withdrawn" in dry years. Who decides what constitutes a wet year vs. a dry year? What if there are no wet years? Will the project become merely a water mining/extraction operation if there are no wet years? There is confusion in describing the project as a "wet year F2

storage and dry year withdrawal" project. It is unreasonable to assume that, in every scenario, there will be at least 5 wet years with which to begin. The NPS assumes that this reflects surplus years on the Colorado River; not wet years on the Colorado River or in the Fenner Valley basin. Further, NPS assumes that "dry year" refers to dry years on the Colorado River. Please define these terms so the proposal is understandable. F2-36

Page 5-91, Potential Impacts to Nearby Communities - The only information presented in the EIS concerning Mojave National Preserve is that it is 15 miles north of, and up-gradient from the project spreading basins and well field. While these are important considerations, the EIS should include a description of the Preserve's water dependent resources. These include many springs and seeps that support the nationally important flora and fauna resources of the Preserve, including its designated Wilderness Areas. Even very small sources of water in a desert environment are critical to preserving these resources. These springs could be impacted by changes in the characteristics (e.g. water level or gradient) of the valley bottom aquifers. Additionally, there are designated Wilderness areas on BLM lands outside of the Mojave National Preserve that equally depend upon springs and seeps for their ecology. The EIS states that there is no potential for impact to groundwater underlying Mojave National Preserve. However, the ground-water model developed for this EIS shows predicted drawdown up to 25 miles away from the proposed pumping centers (Cadiz, Inc., attachment 2), well within the range of Mojave National Preserve. The EIS does not present any simulated drawdown contours so it is difficult for the reader to understand the extent of potential ground-water drawdown and therefore, the extent of potential impacts. It is important to note that even a very small drawdown can have a dramatic effect on spring flow. The limited information NPS has received on the model results suggest that there is potential for drawdown to occur upgradient and in areas well outside the Project area, possibly within the Mojave National Preserve. F2-37

Page 5-91, Impacts to Water Resources – The EIS must show a map of projected drawdown contours (i.e., the cone of depression), including the maximum drawdown, under various infiltration and extraction scenarios. Please identify on this map all springs, seeps, wells, riparian areas and other water sources, and superimpose on it the boundary of the Mojave National Preserve. Groundwater contour maps are a basic output component of three-layer groundwater models such as the one used in the Cadiz EIS. Such maps were presented to NPS by Cadiz, Inc. on 2 February 2000 (see attachment 2). The zero drawdown contour extends to the north, but is off the maps and outside the model boundary. How far north does the zero contour extend? The Old Woman Mountains Wilderness appears to be within this contour. Will there be impacts to springs in this wilderness as a result? Does the contour extend into the Mojave National Preserve, and will there be resultant impacts to NPS water resources? F2-38

Page 5-95 - Releasing "1,015,532 tons of salt" and "12.2 tons of perchlorate" into the groundwater table should be considered a significant impact. Please revise the EIS accordingly. F2-39

The State's provisional limit on perchlorate is 18.0 nanograms per liter. The EIS suggests that the Colorado River water is two orders of magnitude more polluted than what is considered safe for human consumption.

Page 5-103, Springs and Phreatophytes – The EIS states there would be no impact to springs in the Clipper Mountains. The concerns presented above leave NPS hesitant to agree that there would be no impact as stated. F2-40

Page 5-105 – What agency would be responsible for approving and enforcing the groundwater monitoring and mitigation plan? F2-

Page 5-105 – NPS withholds detailed comment on the Mitigation Measures for water resources until a detailed monitoring and mitigation plan is prepared. F2-

Page 5-107, column 1, para. 2 – The EIS states, "Potential impacts to water resources include adverse changes to the quality and quantity of surface water and groundwater," but concludes that these impacts will not be significant because of a forthcoming monitoring and mitigation plan. This is not a valid conclusion. Until a detailed monitoring and mitigation plan passes agency review and public scrutiny, the significance of the impacts cannot be adequately quantified. F2-

Section 5.6, Air Quality – The EIS states that the Cadiz Project would be in a nonattainment area for ozone and particulate matter (PM10). Therefore, the project emissions would be subject to the General Conformity Rule found at 40 CFR 93.150. Under this rule, the BLM must determine whether the project emissions will be above the de minimus levels found in the Clean Air Act regulations. Was this determination made for ozone and PM10? There does not appear to be a conformity discussion in the EIS, so the NPS assumes that a conformity determination was not made. BLM must issue a draft conformity discussion to the public for a 30-day review per 40 CFR 93.156. NPS recommends that this public review run concurrent with a comment period for a supplemental draft EIS. F2-4

Page 5-113, Sensitive Receptors – The Mojave National Preserve is a sensitive receptor. F2-4

Page 5-116, Air Quality, Operations Impacts – As the project extracts water, Cadiz and Bristol Dry Lakes will become drier. Please provide an analysis of the air quality impacts associated with this effect. Impacts to the Mojave National Preserve should be included in the analysis. F2-4

Page 5-261 – NPS is concerned about impacts to the night sky. We request that any permanent night lighting associated with the project be shielded and controlled by a switch or motion sensor so that they do not remain lit continuously. F2-4

7.0 Cumulative Impacts

Section 7, Cumulative Impacts - The cumulative impacts analysis incorrectly assumes that only other MWD water projects (Hayfield Groundwater Storage Project) should be taken into consideration in the cumulative impacts analysis. This is a serious flaw in the analysis and may void the entire cumulative impacts analysis. The cumulative impacts analysis needs to take into consideration the impacts from other projects which affect the same resources. This would include, but not be limited to existing agricultural projects such as Cadiz, Inc.; other wells and water extraction facilities in the Bristol, Fenner, and Cadiz aquifers; playa mining operations; existing traffic; etc. F2-4

The definition of cumulative impacts on page 7-1 is inaccurate, and leads the reader to believe that a project must be "closely-related" to contribute to cumulative impacts. As stated above, however, a project need only have similar impacts or affect the same resources to contribute to cumulative impacts. Please revise the definition of cumulative impacts per 40 CFR 1508.7, and rewrite the cumulative impacts chapter in the EIS based on this corrected definition.

The cumulative impacts analysis fails to separately assess cumulative impacts from each alternative in conjunction with other projects. F2-49

The cumulative impacts analysis for Water Resources (7.5.5) does not take into account the past, present and reasonably foreseeable future impacts of the project on the volume of indigenous groundwater withdrawn from the project basins when combined with the groundwater pumping by Cadiz, Inc.'s agriculture operations and possibly other groundwater users which draw from the same aquifers. Significant cumulative effects include changing the elevation of the groundwater in the basin by decreasing it more than 150 feet. Other significant cumulative effects include drawing out up to two million acre-feet of indigenous groundwater over the life of the project, when combined with Cadiz Inc.'s additional 61,740 acre feet drawn from the project basins over the past 15 years plus their projected water use for the foreseeable future. F2-50

The cumulative impacts analysis does not take into consideration the impacts of the Rail Cycle project which, according to the EIS on page 5-11, "could result in potential impacts on groundwater which would affect the Cadiz Project." Not only could the Rail Cycle project impact the Cadiz Project, but the combined impacts of the Cadiz Project and Rail Cycle could have significant impacts on the groundwater, traffic, air quality and other aspects of the environment. Although the Rail Cycle project is currently tied up in litigation, it is a "reasonably foreseeable future action" which should be taken into consideration in a cumulative impacts analysis. F2-51

The cumulative impacts analysis does not take into consideration the cumulative impact of water conveyance structures and other linear structures which may prevent wildlife migration. In particular, there is no cumulative impacts analysis for the combined impact of the parallel alignment and potential barriers of the Eastern Canal (alternative), the Cadiz Rice Road and the Arizona California Railroad line on desert sheep, desert tortoise, and other wildlife migration patterns. F2-52

10.0 Irreversible and Irretrievable Commitment of Resources

Page 10-1, Irreversible and Irretrievable Commitment of Resources - Irreversible environmental changes caused by the project should include basin subsidence and reduced groundwater carrying and holding capacity of the groundwater basin as a result of the subsidence. Additionally, depletion or significant reduction of indigenous groundwater from the basin should be included if natural recharge will take many years to bring the basin back to existing groundwater levels prior to the project. The project itself may be an irreversible and irretrievable commitment of resources such that the projected 50-year project life will be lengthened indefinitely. As such, the impacts to the groundwater basin caused by the project will be lasting, indefinite, and, perhaps, irreversible. F2-53

15.0 Glossary of Terms, Acronyms and Units of Measure

Page 15-1, Glossary - Define "Cumulative Impacts" using the NEPA or CEQA definition. The current definition is neither a CEQA nor a NEPA definition. Define "Direct Effect" using the NEPA or CEQA definition. Define "Indirect Effect" using the NEPA or CEQA definition. There is no distinction under either NEPA or CEQA between "direct effects" or "indirect effects" and "direct impacts" or "indirect impacts" respectively. Both CEQA and NEPA regulations state that "impacts" and "effects" are synonymous. 40 CFR 1508.8, 14 CCR 15358. This distinction between "impacts" and "effects" should be eliminated from the glossary and anywhere it is used F2-54

in the EIS/EIR. Therefore, delete the definitions of "Direct Impact" and "Effect" from the glossary.

2. Air Quality

The wind rose on page 5-74 of the EIS shows that winds blow from the south through the project area 20% of the time during the period evaluated. Pumping plans in the EIS call for the project to pump more water than it recharges. This will create less groundwater discharge at Cadiz and Bristol Dry Lakes. Over the long term, water levels beneath the lakes would decline. Lower water levels would then cause the upper sediments of the lakes to dry out and result in a dust problem. As is evident from the figure on page 5-74, this dust could easily blow into the Mojave National Preserve. NPS considers this a significant impact and one that is unacceptable. Please provide an analysis of this issue and modify the water resources and air quality sections as appropriate. The project must be modified to prevent this potential effect, and monitoring and mitigation must be implemented to ensure that the Cadiz Project will have no long-term negative effects to air quality in the Preserve.

3. Adequacy of the Monitoring and Mitigation Plan

The EIS refers throughout the document to a "Groundwater Monitoring and Management Plan" that will be prepared for the Cadiz project. This document is discussed briefly on page 5-105 of the EIS. Each impact to water resources that is listed as potentially significant in the EIS is supposedly mitigated by this plan. Specifically, see impacts associated with ground structure instability (subsidence, hydrocompaction, and liquefaction), water quality (changes in surface and groundwater quality, movement of the saline/freshwater interface), and water quantity (groundwater levels, groundwater supply to Bristol and Cadiz Dry Lakes) on pages 5-105 – 5-107. The details of the monitoring and mitigation plan are not outlined in the EIS, however, so the public has no basis for which to judge the effectiveness of this plan. Until the details of this plan are released, it is impossible to judge whether the monitoring and mitigation plan would truly reduce the level of impacts to below significance.

It is the understanding of the NPS that the monitoring and mitigation plan is currently in production. Nevertheless, the plan must pass public review and scrutiny in an appropriate NEPA forum, especially since it is being used to suggest that it will alleviate each significant impact to water resources. NPS requests that a monitoring and mitigation plan be prepared in advance of the final EIS with the advice and assistance of USGS and appropriate stakeholders including NPS and San Bernardino County. The monitoring must include measures that will provide an early warning of potential impacts to the Mojave National Preserve and to wilderness areas. The mitigation must have legally-enforceable, regulatory controls and triggers sufficient to modify or halt the project if necessary to control impacts. This plan would constitute "significant new information" as described by NEPA regulations, necessitating the preparation of a revised draft or a supplemental draft EIS. The monitoring and mitigation plan should serve as an attachment or appendix to the new EIS.

4. Modified Project Proposal and Environmental Analysis

A project that negatively impacts any springs, seeps, or riparian areas in any wilderness area or in the Mojave National Preserve is not acceptable. Water resources in wilderness and the Preserve are protected federal water rights and are a trust resource belonging to the American public. In the arid desert environment, the few surface water resources that do exist are critical to wildlife and the maintenance of a delicate ecosystem. If the project pumps out more indigenous water than is naturally recharged, there could be a significant negative effect to these resources. Based on the results of the independent review of the *Cadiz Water Resources* report, there is ample evidence that the existing groundwater study contains serious technical flaws. The study must be revised in order properly assess the impacts of the project on groundwater resources both within the project area and on adjacent lands, including the Mojave National Preserve. F2-57

If the revised groundwater study supports the findings of the USGS and the other reviewers, the project proposal must be modified so that the Cadiz Project and MWD take no more indigenous water than is naturally recharged on an annual basis, or will cause a change in any water source in a wilderness area or the Mojave National Preserve. Based on the results of the USGS and other reviewers, the natural groundwater recharge rate should be at least an order of magnitude less than that currently suggested in the EIS.

NPS requests that you prepare a new groundwater model that accurately reflects the groundwater hydrology of the desert basins in question. This document should be prepared with the advice and assistance of interested stakeholders including NPS and the County of San Bernardino. Further, the groundwater study should reflect the consensus view of all pertinent groundwater resources experts, including the USGS, NPS water resources experts, consultants for San Bernardino County, MWD, and specialists for other affected parties.

The implementing regulations for NEPA state that agencies shall prepare supplements to draft environmental impact statements if "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action and its impacts." (40 CFR 1502.9). These regulations further state, "If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a *revised* draft...". The Cadiz Project requires a new modeling effort and water analysis, and therefore necessitates preparation of a revised draft or supplemental draft EIS. A revised environmental analysis must allow the public adequate opportunity to comment on the potential environmental effects that are predicted by an accurate water resources study. Please prepare a new groundwater study and a revised draft or supplemental draft EIS and issue it to the public for review. F2-58

The revised or supplemental draft EIS also must undergo substantial revisions to address the concerns stated above, including but not limited to incorporation of a completed mitigation and monitoring plan, revised and expanded evaluation of air quality issues, and revised alternatives and cumulative impacts analyses.

It is my sincere hope that we can work together to resolve NPS concerns about the Cadiz EIS, and more importantly, the entire Cadiz project. As you know, Christopher J. Stubbs of my staff is the NPS coordinator for the review of this project. Feel free to contact Chris at (760) 255-8815 with questions about this letter or any other concerns you may have. F2-

Sincerely,

Mary G. Martin, Superintendent

The cumulative impacts analysis fails to separately assess cumulative impacts from each alternative in conjunction with other projects. F2-49

The cumulative impacts analysis for Water Resources (7.5.5) does not take into account the past, present and reasonably foreseeable future impacts of the project on the volume of indigenous groundwater withdrawn from the project basins when combined with the groundwater pumping by Cadiz, Inc.'s agriculture operations and possibly other groundwater users which draw from the same aquifers. Significant cumulative effects include changing the elevation of the groundwater in the basin by decreasing it more than 150 feet. Other significant cumulative effects include drawing out up to two million acre-feet of indigenous groundwater over the life of the project, when combined with Cadiz Inc.'s additional 61,740 acre feet drawn from the project basins over the past 15 years plus their projected water use for the foreseeable future. F2-50

The cumulative impacts analysis does not take into consideration the impacts of the Rail Cycle project which, according to the EIS on page 5-11, "could result in potential impacts on groundwater which would affect the Cadiz Project." Not only could the Rail Cycle project impact the Cadiz Project, but the combined impacts of the Cadiz Project and Rail Cycle could have significant impacts on the groundwater, traffic, air quality and other aspects of the environment. Although the Rail Cycle project is currently tied up in litigation, it is a "reasonably foreseeable future action" which should be taken into consideration in a cumulative impacts analysis. F2-51

The cumulative impacts analysis does not take into consideration the cumulative impact of water conveyance structures and other linear structures which may prevent wildlife migration. In particular, there is no cumulative impacts analysis for the combined impact of the parallel alignment and potential barriers of the Eastern Canal (alternative), the Cadiz Rice Road and the Arizona California Railroad line on desert sheep, desert tortoise, and other wildlife migration patterns. F2-52

10.0 Irreversible and Irretrievable Commitment of Resources

Page 10-1, Irreversible and Irretrievable Commitment of Resources - Irreversible environmental changes caused by the project should include basin subsidence and reduced groundwater carrying and holding capacity of the groundwater basin as a result of the subsidence. Additionally, depletion or significant reduction of indigenous groundwater from the basin should be included if natural recharge will take many years to bring the basin back to existing groundwater levels prior to the project. The project itself may be an irreversible and irretrievable commitment of resources such that the projected 50-year project life will be lengthened indefinitely. As such, the impacts to the groundwater basin caused by the project will be lasting, indefinite, and, perhaps, irreversible. F2-53

15.0 Glossary of Terms, Acronyms and Units of Measure

Page 15-1, Glossary - Define "Cumulative Impacts" using the NEPA or CEQA definition. The current definition is neither a CEQA nor a NEPA definition. Define "Direct Effect" using the NEPA or CEQA definition. Define "Indirect Effect" using the NEPA or CEQA definition. There is no distinction under either NEPA or CEQA between "direct effects" or "indirect effects" and "direct impacts" or "indirect impacts" respectively. Both CEQA and NEPA regulations state that "impacts" and "effects" are synonymous. 40 CFR 1508.8, 14 CCR 15358. This distinction between "impacts" and "effects" should be eliminated from the glossary and anywhere it is used F2-54

in the EIS/EIR. Therefore, delete the definitions of "Direct Impact" and "Effect" from the glossary.

2. Air Quality

The wind rose on page 5-74 of the EIS shows that winds blow from the south through the project area 20% of the time during the period evaluated. Pumping plans in the EIS call for the project to pump more water than it recharges. This will create less groundwater discharge at Cadiz and Bristol Dry Lakes. Over the long term, water levels beneath the lakes would decline. Lower water levels would then cause the upper sediments of the lakes to dry out and result in a dust problem. As is evident from the figure on page 5-74, this dust could easily blow into the Mojave National Preserve. NPS considers this a significant impact and one that is unacceptable. Please provide an analysis of this issue and modify the water resources and air quality sections as appropriate. The project must be modified to prevent this potential effect, and monitoring and mitigation must be implemented to ensure that the Cadiz Project will have no long-term negative effects to air quality in the Preserve.

3. Adequacy of the Monitoring and Mitigation Plan

The EIS refers throughout the document to a "Groundwater Monitoring and Management Plan" that will be prepared for the Cadiz project. This document is discussed briefly on page 5-105 of the EIS. Each impact to water resources that is listed as potentially significant in the EIS is supposedly mitigated by this plan. Specifically, see impacts associated with ground structure instability (subsidence, hydrocompaction, and liquefaction), water quality (changes in surface and groundwater quality, movement of the saline/freshwater interface), and water quantity (groundwater levels, groundwater supply to Bristol and Cadiz Dry Lakes) on pages 5-105 – 5-107. The details of the monitoring and mitigation plan are not outlined in the EIS, however, so the public has no basis for which to judge the effectiveness of this plan. Until the details of this plan are released, it is impossible to judge whether the monitoring and mitigation plan would truly reduce the level of impacts to below significance.

It is the understanding of the NPS that the monitoring and mitigation plan is currently in production. Nevertheless, the plan must pass public review and scrutiny in an appropriate NEPA forum, especially since it is being used to suggest that it will alleviate each significant impact to water resources. NPS requests that a monitoring and mitigation plan be prepared in advance of the final EIS with the advice and assistance of USGS and appropriate stakeholders including NPS and San Bernardino County. The monitoring must include measures that will provide an early warning of potential impacts to the Mojave National Preserve and to wilderness areas. The mitigation must have legally-enforceable, regulatory controls and triggers sufficient to modify or halt the project if necessary to control impacts. This plan would constitute "significant new information" as described by NEPA regulations, necessitating the preparation of a revised draft or a supplemental draft EIS. The monitoring and mitigation plan should serve as an attachment or appendix to the new EIS.

4. Modified Project Proposal and Environmental Analysis

A project that negatively impacts any springs, seeps, or riparian areas in any wilderness area or in the Mojave National Preserve is not acceptable. Water resources in wilderness and the Preserve are protected federal water rights and are a trust resource belonging to the American public. In the arid desert environment, the few surface water resources that do exist are critical to wildlife and the maintenance of a delicate ecosystem. If the project pumps out more indigenous water than is naturally recharged, there could be a significant negative effect to these resources. Based on the results of the independent review of the *Cadiz Water Resources* report, there is ample evidence that the existing groundwater study contains serious technical flaws. The study must be revised in order properly assess the impacts of the project on groundwater resources both within the project area and on adjacent lands, including the Mojave National Preserve. F2-57

If the revised groundwater study supports the findings of the USGS and the other reviewers, the project proposal must be modified so that the Cadiz Project and MWD take no more indigenous water than is naturally recharged on an annual basis, or will cause a change in any water source in a wilderness area or the Mojave National Preserve. Based on the results of the USGS and other reviewers, the natural groundwater recharge rate should be at least an order of magnitude less than that currently suggested in the EIS.

NPS requests that you prepare a new groundwater model that accurately reflects the groundwater hydrology of the desert basins in question. This document should be prepared with the advice and assistance of interested stakeholders including NPS and the County of San Bernardino. Further, the groundwater study should reflect the consensus view of all pertinent groundwater resources experts, including the USGS, NPS water resources experts, consultants for San Bernardino County, MWD, and specialists for other affected parties.

The implementing regulations for NEPA state that agencies shall prepare supplements to draft environmental impact statements if "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action and its impacts." (40 CFR 1502.9). These regulations further state, "If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a *revised* draft...". The Cadiz Project requires a new modeling effort and water analysis, and therefore necessitates preparation of a revised draft or supplemental draft EIS. A revised environmental analysis must allow the public adequate opportunity to comment on the potential environmental effects that are predicted by an accurate water resources study. Please prepare a new groundwater study and a revised draft or supplemental draft EIS and issue it to the public for review. F2-58

The revised or supplemental draft EIS also must undergo substantial revisions to address the concerns stated above, including but not limited to incorporation of a completed mitigation and monitoring plan, revised and expanded evaluation of air quality issues, and revised alternatives and cumulative impacts analyses.

It is my sincere hope that we can work together to resolve NPS concerns about the Cadiz EIS, and more importantly, the entire Cadiz project. As you know, Christopher J. Stubbs of my staff is the NPS coordinator for the review of this project. Feel free to contact Chris at (760) 255-8815 with questions about this letter or any other concerns you may have. F2

Sincerely,

Mary G. Martin, Superintendent

Attachment 1:
USGS Review

F2-60

In Reply Refer To:
Mail Stop 423

Feb. 23, 2000

MEMORANDUM

To: Molly S. Brady, Field Manager
Bureau of Land Management, Needles, California

From: James F. Devine */Signed/*
Senior Advisor for Science Applications

Subject: Review of the Cadiz Groundwater Storage and Dry-Year Supply Program Draft Environmental Planning Technical Report, Groundwater Resources, Volumes I and II.

As requested by the U.S. Department of the Interior, Bureau of Land Management, the U.S. Geological Survey has reviewed the subject draft report. This draft report was written in support of the Cadiz Groundwater Storage and Dry-Year Supply Program Draft Environmental Impact Report/Draft Environmental Impact Statement/SCH. No. 99021039 (referred to as Draft Report in this review). This memorandum presents USGS comments.

GENERAL COMMENTS:

The Metropolitan Water District of Southern California has proposed a water storage project known as the Cadiz Groundwater Storage and Dry-Year Supply Program (Cadiz Project). The aim of the Cadiz Project is to ensure the reliability of Southern California's existing water supply via the Colorado River Aqueduct by storing Colorado River water in the Fenner, Bristol, and Cadiz watersheds during wet years and withdrawing stored water along with indigenous ground water during dry years. The proposed project would utilize the ground-water basin underlying the Cadiz and Fenner valleys for storage of part of Metropolitan's Colorado River supplies during wet years for later recovery and use during dry years. One of the stated project objectives is to provide up to 2.0 million acre-feet (maf) of indigenous ground water for transfer out of the watershed. In the Draft Report, indigenous ground water is defined as water that naturally recharges the ground-water system on a long-term average. A watershed model and water balance calculations, developed as part of the Draft Report, estimated that the quantity of indigenous water ranges from 20,000 to 71,000 acre-feet per year. A ground-water flow model was used to evaluate the impacts of the proposed project; the model assumed that the annual recharge to the Fenner, Bristol, and Cadiz watersheds was 50,000 acre-feet per year. The review of the Draft Report shows that the watershed model and water-balance studies presented in the Draft Report overestimate the natural recharge to the basin by 5 to 25 times the values estimated

by this review team using similar methods. It is the opinion of the review team that the regional watershed model, water-balance studies, and ground-water flow and transport models were used without adequate data to support the results and the conclusions presented in the Draft Report. The assumptions and methods applied in the development and calibration of both the watershed and ground-water flow models, which are essential for predicting the environmental impacts of the proposed project, are not defensible. The ground-water flow model was developed using an overestimate of natural recharge. This calls into question the usefulness of using the results of the ground-water flow model for predicting the environmental impact of this project. Until more appropriate fluxes and boundary conditions are used, the environmental impact of this study is yet unknown. The following discussion highlights the analysis and rationale for the above statements.

A watershed model was used to calculate "recoverable water" in the basin. Recoverable water was defined in the Draft Report as the total amount of surface runoff and infiltrating water that reaches the regional water table (ground-water recharge or indigenous ground water). The Draft Report estimates that the total amount of recoverable water for the entire watershed ranges from 20,000 to 58,000 acre-feet per year, with a median value of 39,000 acre-feet per year. The watershed model is a detailed daily water budget model: daily precipitation, infiltration, runoff, vegetation interception, evapotranspiration, soil moisture, and percolation are addressed. However, the model does not address bedrock permeability, and this may become an important factor for upland areas, such as the Providence Mountains, where low permeability granitic and metamorphic rocks underlie shallow soils. The model simulates the greatest amount of percolation in these areas; however, the bedrock permeability may be less than the simulated percolation rates. If this is the case, the model should be simulating runoff instead of percolation. Another major problem is that the model does not incorporate any routines to route water through the surface drainage network and estimate downstream flows and subsequent percolation. The fact that runoff occurs does not imply that the water will percolate farther downstream in the basin and eventually become recharge. Vegetation in desert environments is very efficient at extracting soil water from great depths. For example, creosote has been reported to extract water from depths as great as 18 feet below land surface. The model will overestimate the recoverable water (annual recharge) to the watershed because the watershed model does not address bedrock permeability and assumes that all runoff from a soil area becomes recharge.

Two types of data were used in the Draft Report to support the watershed model results: chloride mass balance data and isotopic data. The chloride mass balance approach was not properly applied and greatly overestimates water availability in the basin. In the Draft Report, the total area of the Fenner watershed was assumed to contribute recharge; however, studies by Prudic (1994) and Izbicki et al. (1998) indicate that recharge has not occurred on the valley floors of the neighboring Ward Valley and Mojave River basin for thousands of years. Dettinger (1989) estimated that some recharge might occur in alluvial basins in Nevada as a result of precipitation, runoff, and infiltration at elevations in excess of 4,000 feet. If one assumes that recharge only occurs at elevations in excess of 4,000 feet in the Fenner watershed, this would reduce the area of potential recharge from 718,000 acres to 126,000 acres. Another problem with the chloride mass balance approach, as applied in the Draft Report, is that the assumed chloride concentration of precipitation (3.5 milligrams per liter) is much higher than the values used by other investigators (0.4 to 0.8 milligram per liter) (Dettinger, 1989; Prudic, 1994). If one assumes that

only the area of the watershed with elevations in excess of 4,000 feet can contribute recharge and that the chloride concentration of precipitation is 0.8 milligram per liter (Prudic, 1994), then the estimated recharge for the Fenner watershed, using the chloride mass-balance approach, is 1,710 acre-feet per year. This value is more than 20 times less than the value of 40,000 acre-feet per year estimated in the Draft Report.

The occurrence of active ground–water recharge in the Fenner, Bristol, and Cadiz watersheds is reported in the Draft Report to be supported by isotopic evidence of geologically "recent" (Holocene) age of ground water. Carbon-14 data from observation wells in Fenner Gap range from 18 to 25 percent modern carbon and have apparent ages ranging from 11,500 to 14,000 years before present. The Draft Report suggests that water-rock reactions have occurred and ground-water ages are younger than the apparent ages indicate. On the basis of carbon-13 data provided as part of the Draft Report, it is apparent that reactions have occurred between ground water and aquifer materials; however, it is still possible to interpret the carbon-14 data. A complete interpretation of possible rock-water reactions and resulting corrections in carbon-14 data was beyond the scope of this review; however, an estimate of corrected carbon-14 ages for the Fenner Gap samples was made on the basis of data and rock-water reactions interpreted from other studies. As described in the review comments for section 9.3, the corrected carbon-14 ages range from 5,500 to 10,600 years before present. As a group, the isotopic data show that there is limited recharge under present-day climatic conditions and that ground water sampled at Fenner Gap was recharged thousands of years ago.

The USGS, as part of this review, estimated recharge in the Fenner, Bristol, and Cadiz watersheds using a modified Maxey-Eakin model (1949). The model assumptions and results are included as an attachment to this review. The USGS completed two models for the region. The first model used an elevation-precipitation correlation based on a network of 114 precipitation stations in the Great Basin and the Mojave Desert and represents the regional elevation-precipitation correlation. The second model used an elevation-precipitation correlation for four stations in or near the Cadiz watershed. This model provides unrealistically high estimates of precipitation for elevations of 5,000 feet and higher and does not correctly represent the relation of precipitation with elevation on a regional basis (see attachment). Recharge estimates obtained using the first model provided reasonable estimates of spatially distributed recharge based on a comparison of recharge estimates obtained for various locations throughout the southern Nevada and south-central Great Basin regions. The estimates obtained from the first model were consistent with previous estimates of recharge in the Mojave Desert region, and were more than one order of magnitude less than the recharge estimates obtained from the Draft Report for the three watersheds included in the Cadiz study area. For example, the Draft Report estimated median value of 39,077 acre-feet per year for the three Cadiz area watersheds is 15 times greater than the USGS model (model 1) estimate of 2,550 acre-feet per year. Recharge estimates obtained using the second model were based on unjustifiably high maximum precipitation rates of 500 to 750 millimeters per year for the higher elevations of approximately 6,500 to 7,500 feet. Although precipitation estimates obtained using the second model can be considered reasonable for elevations of approximately 4,000 feet and less, the relatively high precipitation estimates obtained for the summit areas of the Granite and New York Mountains are more representative of expected precipitation rates for elevations of 10,000 feet and higher in the southern Basin and Range Province. Even when using the very unrealistic precipitation rate

for the Cadiz area, the total basin recharge estimated by the second model is still approximately 5 times less than the total basin recharge simulated in the ground-water flow model developed for this Draft Report. This result indicates that the modified Maxey-Eakin model cannot provide the recharge magnitudes indicated in the Draft Report, even when attempts are made to account for uncertainty in precipitation estimates (the original Maxey-Eakin model would estimate even less recharge). In summary, the median recharge rates estimated by the Draft Report watershed model are most likely 15 times higher than the values estimated by the preliminary Maxey-Eakin models developed by the USGS.

The water-balance studies in the Draft Report estimated long-term recharge by estimating discharge by soil evaporation on the Bristol and Cadiz dry lakes. Prior to ground-water development in the watershed, natural ground-water recharge was equal to natural ground-water discharge or, in this case, soil evaporation from Bristol and Cadiz dry lakes. The Report multiplied an assumed soil evaporation rate by the area of the dry lakes. This method assumes evaporation occurs over the entire area of the lakebed (41,600 acres for Bristol and 29,788 acres for Cadiz) and neglects any contribution by surface-water runoff on the lakebed. The total evaporation estimated in the report ranged from 20,000 to 71,000 acre-feet per year. The final value used in the ground-water model developed for the Draft Report was 50,000 acre-feet per year; therefore, the average evaporation rate used in the Draft Report was 0.7 foot per year. As part of this review, the USGS measured the area of the lakebeds to be 58,457 acres, about 13,000 acres less than the Draft Report value. Water-level data from wells constructed on the lakebed indicate that the depth to water exceeds 10 feet throughout most of Bristol dry lake (Moyle, 1967). Kunkel and Chase (1969) estimated that the annual rate of evaporation from bare soil on China Lake in Indian Wells Valley decreased to negligible amounts at water-level depths of more than 7 feet below land surface. An ongoing study by the USGS in Death Valley has measured rates of about 0.17 feet/year on a salt playa (salt crust) where the depth to water was less than 1 foot (Guy DeMeo, USGS, WRD, Las Vegas, Nevada, written communication, 2000). If one uses the Death Valley number for the evaporation rate (0.17 foot per year), and multiplies that by the area of dry lake playa surface digitized from the geologic map (58,457 acres), the estimated evaporation is 9,900 acre-feet per year. This value probably overestimates the evaporation, because it uses the total area of the lakebeds and ignores any contribution from surface runoff. The total evaporation used in the ground-water flow model (50,000 acre-feet per year) is unreasonable on the basis of depth to water and soil characteristics, and needs to be significantly reduced. Multiple depth monitoring wells are needed on the dry lakes to determine the depth to water. The evaporation from the lakebeds needs to be measured using energy-budget methods (Laczniak et al., 1999) or salt crust accumulation methods (Feth and Brown, 1962) to better quantify this water loss.

As has been stated above, the quantity of natural ground-water recharge to the Fenner, Bristol, and Cadiz watersheds and discharge (evapotranspiration) from Bristol and Cadiz dry lakes has been grossly overestimated. A direct result of these overestimates of recharge and discharge is that the ground-water flow model developed as part of the Draft Report is incorrect because it was calibrated using overestimated recharge and evapotranspiration values. Specifically, the aquifer parameters (e.g., hydraulic conductivity, transmissivity, and the extinction depth for soil evaporation from the dry lakebeds) are overestimated. In general, the consequences of an incorrect model are inaccurate simulations of steady-state and transient conditions (water levels

and simulated fluxes) and unreasonable predictions of water levels and fluxes in response to the proposed put/take scenarios. The model needs to be recalibrated before it can be used to predict water-level changes, solute movement, and land subsidence resulting from the planned recharge/pumpage operation. The operating scenarios described for the Cadiz Project's 50-year term of operations indicate a transfer of 1.3 to 2.0 million acre-feet of indigenous ground water out of the watershed. The Draft Report assumes that 2.5 million acre-feet of natural ground water will recharge the watershed over the 50-year term of the project; therefore, the Draft Report predicts that there will be no long-term ground-water-level declines. However, if the natural recharge is less than the quantity of indigenous ground water transferred out of the watershed, water-level declines will be greater than currently simulated by the model. The ground-water flow model needs to be recalibrated with lower values of natural ground-water recharge. After the model has been recalibrated, the model needs to simulate the long-term effects (100 to1,000 years) of the proposed project on water levels and ground-water discharge to Bristol and Cadiz dry lakes. The model grid will need to be expanded to evaluate the long-term impact of ground-water withdrawls on spring discharge and water levels in Fenner Valley.

The brines present beneath the dry lakes have a greater density than freshwater. Consequently, a density-dependent solute transport model is needed to accurately simulate the movement of the brine. A nondensity-dependent model, MT3D, was used to simulate the brine movement for this Draft Report. This model cannot simulate a density-dependent solute transport problem and, therefore, any results and conclusions regarding the water levels and movement of brine near the dry lakes are questionable.

In summary, the results of the watershed model, chloride mass-balance studies, isotopic data, water balance (evaporation at the dry lakes), and ground-water flow and solute transport models presented in the Draft Report greatly overestimate natural ground-water recharge and discharge. Data presented in the Draft Report and all previous studies done in the area are consistent with small amounts of recharge to desert basins. The 50,000 acre-feet per year of natural ground-water recharge to the Fenner, Bristol, and Cadiz watersheds is 5 to 25 times the values estimated by the review team. Such a large error in such an important component of the model invalidates the flow and solute model results and predictions. No matter what the actual recharge value is, if the project pumps more water than it recharges, there will be less ground-water discharge at the dry lakes. Over the long-term, this will cause water levels beneath the dry lakes to decline. A density-dependent solute-transport model is needed to evaluate the long-term impacts of the project on the brine levels. The Draft Report does not address how water-level declines will impact the dry lakes. With a decrease in ground-water discharge, will the mining operation at the dry lakes be impacted? Will lower water levels cause the upper sediments to dry out and result in a dust problem? The failure of the model to simulate the water levels beneath dry lakes invalidates the model's ability to predict any impacts resulting from the recharge/pumping operation on water levels and solute transport beneath the dry lakes. With less recharge in the model, water-level declines resulting from the pumping phase of the project will be greater than currently estimated. This will undoubtedly cause the high salinity water beneath Bristol dry lake to move towards the pumping wells, assuming there does not exist a ground-water barrier between the well field and Bristol dry lake. If ground-water pumpage of indigenous ground water exceeds the natural recharge to the watershed, there will be long-term impacts on water

levels and natural ground-water discharge (evaporation and spring discharge) from the watershed.

As part of this review, the U.S. Geological Survey was requested to recommend ground-water monitoring and management strategies for the Cadiz Project. Preliminary recommendations are included in this summary and throughout the review document. Following are some of the more significant recommendations. Prior to the initiation of this project, better estimates of natural recharge and discharge need to be made. Infiltration of precipitation and streamflow should be quantified by collecting soil-moisture, chemical, and isotopic data in areas of potential recharge. A long-term ground-water-level and quality monitoring network needs to be established to help determine the impacts from the project. The network should include multiple-well monitoring sites to monitor water levels and water quality with depth. Monitor wells will be needed on the dry lakes to determine if the lakes are hydraulically connected to the regional aquifer. Monitor wells will be needed above the current water table to sample the recharge water during the put phase of the project, when water levels will rise in response to the artificial recharge. Wells will also be needed about 100, 250, and 500 feet below the current water table to monitor the movement of the recharge water. Microgravity measurements could be collected to estimate water levels in areas where well data are sparse. A revised ground-water flow model could be used to optimally locate the monitor well sites. Springs within the predicted long-term (100-year) drawdown cone should be monitored for flow and water quality. Velocity logs and downhole sampling should be completed on the production wells to help determine the principal zones contributing water to the wells. This information will be important for recalibrating the ground-water flow model and designing the proposed well field. Soil evaporation from Bristol and Cadiz dry lakes should be measured using energy-budget or salt accumulation methods prior to and during the proposed project to help determine the impact of the project on the dry lakes. Interferometric synthetic aperture radar (INSAR) could be used to monitor land movement (inflation or subsidence) that may occur as a result of the proposed project (Galloway et al., 1998). The INSAR images could be used to help locate potential barriers or changes in aquifer properties.

SPECIFIC COMMENTS:

2.0--INTRODUCTION

Page 15, 2.2, Purpose and Scope. Is this the purpose and scope for the entire project or just for the pilot study? In this part of the report one would expect the purpose and scope for the entire project. Much of the material that follows has to do with determining the hydrogeology of the area. The pilot test study is a small part of Volumes I and II.

Page 16, 2.4, Previous Investigations. The authors list previous investigations but do not list the major findings of the reports. For example, Friewald (1984) estimated underflow through Fenner Gap to be 300 acre-feet per year, significantly less than the value of 30,000 acre-feet per year presented in the Draft Report. The report states that Prudic (1994) estimated percolation rates and ages of water in the unsaturated sediments in the Mojave Desert. The Draft Report neglects to report that Prudic (1994) estimated that the age of water at the depth of 10 meters is between 16,000 and 33,000 years. In addition, percolation rates below a depth of 10 meters at

the Ward Valley site (the basin directly east of Fenner Valley) were on the order of 3 to 5 centimeters per 1,000 years. Prudic's results indicate that there is no recent recharge at the sites that he studied. The Draft Report presents a list of companies involved with investigations in the Bristol and Cadiz dry lake areas but does not discuss the findings of these studies. The reports by P.E. LaMoreaux & Associates, Inc. (1995) and Boyle Engineering Corporation (1996) question the quantity of ground-water underflow reported by Cadiz Land Company, Inc. (20,000 acre-feet per year) and suggest that the quantity of underflow is significantly less (3,000-4,000 acre-feet per year). The results of these studies need to be presented and evaluated.

Page 19, 2.5, Data Sources. The Draft Report states that it used data from Moyle (1967), but later in the Draft Report, Moyle's (1967) measurements of depth to water beneath the dry lakes were not used in the computation of evaporation from the dry lakes. The report utilizes data by Shafer (1964) later in the Draft Report to substantiate paleo river channels. This report is not readily available; therefore, it would be beneficial to reproduce some of the key elements of the Shafer (1964) report in this document.

3.0--DESCRIPTION OF AREA

Page 29, 3.2, Drainage Boundaries **and Surface Stream System.** The Draft Report considers Bristol, Cadiz, and Fenner one drainage system because all surface and ground water are reported to drain to a central location. However, it should be noted that the surface-water drainages of Bristol and Cadiz are separated by the coalesced alluvial fans of the Calumet Mountains to the south and the Marble Mountains to the north. Rosen (1992) reports that both basins have completely separate internal drainage. The ground-water basins are not well defined; however, northwest-southwest regional faulting may separate the Bristol and Cadiz ground-water systems. Sparse water-level data from Moyle (1967) suggest that there may be a barrier to ground-water flow on the eastern end of Bristol Dry Lake. Additional data are needed to better define the ground-water flow system. Data are not presented in the report to show that Bristol and Cadiz basins are closed ground-water basins.

The Draft Report includes the southern third of Lanfair Valley in the Fenner watershed. The southern third of Lanfair Valley is indeed part of the surface-water drainage system; however, it is probably not part of the Fenner ground-water basin. Friewald (1984) includes the southern third of the Lanfair Valley as part of the Lanfair ground-water basin. Ground water that recharges at the flanks of the New York Mountains moves to the east in Lanfair Valley and discharges at Piute Spring on the eastern part of the valley (Friewald, 1984). The Woods and Hackberry Mountains and the Vontrigger Hills form the southern boundary to the Lanfair ground-water basin. Surface-water drainage occurs along the Watson Wash; however, available data do not indicate that ground water follows the same drainage. Geophysical data or well data are needed to define the thickness of the basin-fill deposits beneath the Watson Wash to determine if ground water can move through the narrow gap between the Woods and Hackberry Mountains. The Draft Report references a study by Viceroy Gold Corporation (1990) as a basis for including the southern third of Lanfair Valley in the Fenner ground-water basin. Because this reference is not readily available, the data presented in the Viceroy (1990) study should be included in the Draft Report to substantiate including the southwestern third of Lanfair Valley in the Fenner ground-water basin. In any case, the quantity of ground-water discharge from Lanfair

Valley to Fenner Valley must be small because of the limited extent of the aquifer in the mountain gaps.

The Draft Report cites Izbicki et al. (1998) to imply that infiltration from washes during storm events is a source of recharge to Fenner basin. The work described in that paper was done in the western part of the Mojave Desert in washes that drain the Cajon Pass area. This area is far wetter than the Fenner watershed. In addition, the wash studied has some unique geologic features that may not be applicable to the washes draining the Fenner Basin. Furthermore, Izbicki et al. (1998) indicate that the quantity of flow and the amount of recharge from the wash are small and that travel times through the thick unsaturated zone are as long as several hundred years.

Page 30, 3.3, Climate.

Page 31, 3.3.2, Precipitation.

Page 34, 3.3.6, Evaporation. Please show graph of monthly evaporation rates.

4.0--GEOLOGY

Page 35, 4.1, Regional Geologic Setting. The depression that forms the Bristol watershed is believed to be the result of regional movement along the fault (Rosen, 1989). What is the age of these faults and do they cut the water-bearing deposits?

Page 35, 4.2, Stratigraphy. Grouping the geologic formations into only three groups (bedrock, loose alluvial sediments, and fine-grained sediments underlying Bristol and Cadiz dry lakes) is an oversimplification. Inspection of the geologic and geophysical logs presented in the Draft Report indicates that the alluvial sediments become more fine-grained and indurated with depth. Most of the loose alluvial sediments as described in the Draft Report lie above the water table. The Draft Report presents figure 17 showing the estimated bedrock elevations of the Bristol, Cadiz, and Fenner watersheds and cites Maas (1994) as the source of the data. How were these bedrock elevations determined? What geophysical techniques were utilized? Borehole data, showing the elevation where bedrock was encountered, should be included on figure 17. Figure 19 in the Draft Report shows the estimated depth to bedrock in the Fenner Gap area. This map does not contour the depth to bedrock correctly in the areas where well data are available. For example wells MW-7 encountered bedrock at a depth of about 500 feet. Figure 19 has a contour of 1,500 feet passing near this well. Figure 19 overestimates the depth to bedrock in Fenner Gap and the map is incorrectly contoured. Well data need to be shown on the map. Symbols shown on the map need to be included in the explanation. The data used to construct the simplified seismic cross section (figure 20) should be included with the Draft Report.

The statement that most of the sediment is Holocene is questionable. Numerous studies have shown that Pleistocene soils are widespread and common at the surface in the Mojave Desert, and where they are not present at the surface they are commonly present just a few meters beneath Holocene alluvial fan sediment. See McDonald et al. (1995) for one of many nearby examples. Several photographs in Volume 1 nicely illustrate the argillic and calcic horizons in

the area, and the section on paleontology describes calcic materials in the area of the well field. Unpublished geologic mapping by USGS identifies widespread Pleistocene soils in the area. For example, much of the valley between the Marble and Clipper Mountains is underlain by stage IV calcic horizons within one meter of the surface. Argillic horizons are important hydrologically, and their presence is hinted at by the non-linear rate of percolation in the percolation pond experiments.

Page 37, 4.3, Structure. The Draft Report states that more than a dozen faults (figure18) is evidence of Quaternary movement in the Fenner watershed. How do these faults affect the movement of ground water? Why weren't these faults considered in the development of the ground-water model described later in the Draft Report? Rosen (1989) is cited as saying that subsidence of the Bristol dry lake continues to the present. This would suggest that the faults cut the aquifer system, and are potential barriers to ground-water flow. These faults could have a major impact on the storage and recovery operation if they are barriers or partial barriers to ground-water flow.

Figure 18 does not include the Iron Mountains Fault, which may connect to the northwest with the Bristol-Granite Mountains Fault and thereby pass near the well field at Cadiz. In addition, this figure is incorrectly ascribed to the reference by Miller and Howard (1985); that paper included the Iron Mountains Fault and did not show many of the connections of faults across the Bristol-Danby trough. The faults shown in figure 18 must correctly reflect the cited source, which shows the Iron Mountains fault as Quaternary. The steep slope on the buried basement surface under the proposed well field could be support for a connection of the Iron Mountains and Bristol-Granite Mountains faults. The well field accordingly may straddle a buried fault only a few meters beneath the surface, which may have hydrologic implications and seismic hazard implications.

The Draft Report cites geothermal heating (up to 90°F) in the Fenner Gap and suggests that the heating may be caused by convection of ground water with a zone of brecciated bedrock in the Fenner Gap. What is the flowpath for the ground water to move into the brecciated bedrock? The presence of the geothermal water would preclude a significant quantity of underflow of ground water through the alluvial deposits in Fenner Gap. If there were a significant quantity of underflow through the gap, one would expect cooler temperatures associated with winter recharge of precipitation and runoff (around 60°F).

5.0--GEOHYDROLOGY

Page 39, 5.1, Groundwater Basins. The Draft Report assumes that Bristol, Cadiz, and Fenner basins are closed; however, hydrologic data are not presented in the report to substantiate this statement. Does ground water move from Dale dry lake to Cadiz or from Cadiz ground-water basin to the southern part of Ward Valley? Water-level and geologic data are needed to support the statement that the basins are closed.

The Draft Report assumes that the topographic divides form the margins of the ground-water basins. This assumption will result in the overestimation of the size of the ground-water basins, because most of the margins of the basin consist of nonwater-bearing consolidated rocks. The

ground-water basins should be defined by the contact of the consolidated rocks and the saturated basin fill.

Page 39, 5.2, Aquifer Systems. Sediments in the basins may, and almost certatinly does, include the early Miocene volcanic rocks and associated sediments, which are shown on the geologic maps and described in the geologic history, but ignored in the treatment of materials in the basins. Volcanic rocks dip northeast from the Marble Mountains and roughly north from the Ship Mountains. It seems likely that some of this section is present in deeper parts of the ground-water basin.

The upper alluvial unit is unlikely to be just Quaternary sediments as defined. Quaternary sediments have accumulated at rates of a few meters per ten thousand years, and even in sites of rapid deposition are unlikely to be 800 feet thick, as described in the Draft Report. Regardless of their exact thickness, numerous buried soil horizons are to be expected within a thick Quaternary section.

The Draft Report divides the basin into an upper alluvial aquifer, lower alluvial aquifer, and a bedrock aquifer. It is unclear how the upper and lower alluvial aquifers were delineated. The report states that the average thickness of the upper aquifer is 500 feet. Does this thickness include the unsaturated alluvium? Inspection of the geophysical and lithologic logs presented in the Draft Report indicates that the deposits become poorly sorted with a higher percentage of fine grained deposits at about 300 to 400 feet below land surface in the Fenner Gap (MW-3, MW-6, and MW-7). Inspection of the short- and long-normal resistivity logs indicates that there is little separation between the logs. The lack of separation suggests that the sediments are fine-grained or indurated. The spontaneous potential log also shifts at this point in the borehole, indicating a change in water chemistry or sediments. This change in character on the logs is probably the contact between the upper alluvial sediments and the lower alluvial sediments. The long-normal resistivity averages about 40 ohm-m above the contact and less than 20 ohm-m below the contact. The water table is about 300 feet below land surface in the Fenner Gap; therefore, the saturated thickness of the upper alluvial aquifer is on the order of only 100 feet in the Fenner Gap. The lower aquifer would then extend from 400 feet below land surface to the top of the bedrock. As indicated on the lithologic logs and shown on plate 3 of Draft Report, these lower sediments contain high percentages of silt and clay and are less permeable than the overlying deposits.

The Draft Report states that the upper aquifer is very permeable. This statement is based on pumping well PW-1. Well PW-1 is located downgradient of the Fenner Gap, and is probably in the Bristol Trough as described by Jachens et al. (1992). Inspection of the lithologic and geophysical logs for PW-1 indicates that well encountered relatively permeable deposits to a depth of 650 feet. Inspection of the short and long normal resistivity logs shows significant separation to this depth, suggesting permeable deposits. Below 650 feet the logs merge together and decrease in resistivity, suggesting less permeable deposits. The long normal resistivity decreases from about 50 ohm-m above 650 feet below land surface to less than 30 ohm-m below 650 feet. The water table at PW-1 is about 275 feet below land surface. These interpretations indicate that the saturated thickness of the upper alluvial aquifer is about 375 feet at well PW-1 compared with 120 feet at well MW-3.

The lower alluvial aquifer is reported to yield water freely to wells. This statement is supported in the Draft Report by the statement that the "Cadiz agricultural wells are screened primarily in the lower alluvial aquifer and typically yield 1,000 to 2,000 gallons per minute." The Draft Report needs to present the lithologic and geophysical logs, well-construction information, and specific-capacity data to support this statement. As indicated later in the water-quality section of this review, the water chemistry of the Cadiz agricultural wells is significantly different than the chemistry in the Fenner Gap wells, suggesting that the Cadiz wells are pumping water from the upper alluvial aquifer.

The Draft Report indicates that the recent drilling in Fenner Gap indicates that the Paleozoic rocks that underlie the Fenner Gap comprise a third aquifer unit. The data that support this statement need to be presented in the Draft Report. Well CI-2 is perforated in the "bedrock aquifer." What is the specific capacity of this well?

5.3 Groundwater Recharge, Flow Direction, and Flow Rate

Page 40, 5.3.1, Groundwater Recharge. See comments regarding the infiltration from washes inferred from Izbicki et al. (1998) in the section 3.2 comments. The report cites several references as reporting that the principal recharge to Bristol and Cadiz dry lakes is seepage of ground water into the lakebed sediments from adjacent alluvial deposits. Did these references estimate the quantity of ground-water seepage?

The Draft Report states that the occurrence of active ground-water replenishment within the Bristol, Cadiz, and Fenner watersheds is supported by (1) the existence of a regionally consistent hydraulic gradient, (2) isotopic evidence for a geologically "recent" age of the ground water, and (3) stable ground-water elevation recorded in wells located between Fenner Gap and Bristol dry lake despite continuous ground-water pumping by Cadiz agricultural operations for more than 15 years. What does a regionally consistent hydraulic gradient indicate? The gradient is dependent on the aquifer hydraulic conductivity and the quantity of ground-water flow. If the hydraulic conductivity is poorly defined, then the gradient doesn't indicate the quantity of flow. Please refer to the comments about isotopic evidence for geologically "recent" (Holocene) age for ground water in comments for Section 9.33. It is stated that the ground-water elevations have been "stable"; however, data indicate predevelopment water-level elevations of about 600-625 feet while figs. X-4 to X-15 show current water-level elevations of about 580 feet or less. This indicates there has been drawdown in the area under relatively low pumping rates. The report by Boyle Engineering Corporation (1996) states that the measured drawdowns in the Cadiz wells indicate that the perennial yield of the basin is less than 4,000 acre-feet per year.

The estimated average amount of recoverable water (surface runoff and ground-water recharge) available to Project area is reported to range from 15,000 to 37,000 acre-feet per year. What is the breakdown of quantities of surface runoff and ground-water recharge? How was the surface water routed from Fenner Gap to Bristol and Cadiz dry lakes? Was the surface-water drainage divide between Bristol and Cadiz dry lakes considered? The validity of these numbers will be discussed in the review of Section 6.0. Based on model results presented in Section 8, the amount of ground water available to the Project area on an annual basis is estimated to be 30,000

acre-feet per year. The validity of this number will be discussed in the review of Section 8. These numbers should not be presented in this part of the Draft Report.

Page 41, 5.3.2, Groundwater Flow Direction. The data used to construct the water-level elevation map (figure 21) needs to be included in the Draft Report. The data points need to be presented on the map. Does the map represent water levels collected at the same time or is it a collection of different time periods? The map does not accurately represent the water levels measured in the Fenner Gap area. For example the water level reported for the Siam well 5N/15E-4X1 is 641 feet but the map indicates a water level of 670 feet. Well 6N/15E-29Q has a measured water level of about 690 feet; however, on the map the water level is about 750 feet. These are just two examples of many problems on the contour map. With the scarcity of data, many of the contour lines should be queried. What impacts do the faults have on the ground-water flow direction? One would think that the northwest/southeast trending faults might be barriers to flow. In addition, geothermal heating (presented in Section 4.3) indicates that the faults are impacting the flow system. The Draft Report states that ground water flows through Fenner Gap and then migrates to Bristol and Cadiz dry lakes. If the water levels for the Cadiz agricultural wells (presented in the Draft Report) are plotted on the map, there is a water-level depression related to the 15 years of agricultural pumping (water-level elevations range from 590 feet on the north end of the agricultural fields to 530 feet on the south end of the fields. How has this agricultural pumping changed the predevelopment movement of ground water? Water levels beneath the fields are currently lower than historical water-level measurements beneath Bristol dry lake (Moyle, 1967), indicating that ground water moving southward through Fenner Gap will be captured by the irrigation wells.

The Draft Report refers to a "paleowash" identified by a seismic survey in the vicinity of Danby (Shafer, 1964). The seismic data should be presented in the Draft Report. How deep was the "paleowash"? The Draft Report states that water levels support a "paleowash." The water-level data simply indicate the direction of ground-water movement. Fenner Gap is a discharge point from Fenner Valley, therefore, ground water is moving towards this discharge point. How was it determined that no ground water moves through Skeleton Pass? Are there any water-level or geologic data to support this statement? The water-level contour map (figure 21) indicates that ground water moves through Skeleton Pass.

Page 42, 5.3.3, Groundwater Flow Rate. How were the ground-water flow rates determined? Supporting data need to be presented. These data should be presented in chapter 9.

5.4 Groundwater Discharge

Page 42, 5.4.1, Evaporation. Ground-water levels along the east end of Bristol dry lake are as much as 50 feet below land surface (Moyle, 1967; and this Draft Report). Surface evaporation from these depths would be very small. This suggests that ground-water discharge from Fenner Valley also is small. The evaporation estimates are discussed in great detail in the review of s Section 6.6.2.

Page 43, 5.4.2, Ground-water Pumping in Area. The volume of water pumped by Cadiz agricultural operations cited in the second and third paragraphs appears to be contradictory.

Page 44, 5.5, Ground-water Storage. Ground-water storage values are presented here without supporting documentation. These values should not be presented until the method is discussed. These values will be discussed in the review of Section 6.4.

Page 44, 5.6, Ground-water Quality. The Draft Report states that the quality of fresh ground water varies only minimally throughout the Bristol, Cadiz, and Fenner watersheds. Inspection of data presented in the Draft Report and the USGS database indicate that there is more variation than is indicated in the Draft Report. For example, there is even a large variation in water chemistry of wells in Fenner Gap (table 20), ranging from a total dissolved solids (TDS) of 267 nilligrams per liter (mg/L) in well CI-1 to 1,040 mg/L in well MW-3. The total dissolved-solids map (figure 23) needs to have the data (well and TDS values) plotted on the map. The data as plotted on the map indicate that the TDS upgradient of Fenner Gap has a higher concentration (350-400 mg/L) than downgradient of the gap (300 mg/L). If underflow from Fenner Valley is the main source of recharge to the Cadiz agricultural wells, how can the TDS be higher in the recharge water than in the Cadiz wells (less than 300 mg/L in table 3)? The presence of the high TDS values at the dry lakes would indicate that there should be springs along the freshwater/saltwater interface. This conceptual model can be observed at Death Valley. Are springs present around the dry lakes?

Page 45, 5.7, Interrelationship of Bristol, Cadiz and Fenner Watersheds with Other Groundwater Basins. As stated previously in this review, water-level and geologic data are needed to support the statement in the Draft Report that the basins are closed.

6.0--EVALUATION OF WATER RESOURCES

Page 46, 6.1, Evaluation of Recoverable Water Using a Watershed Model. The watershed model is reviewed below by section. In addition, we have presented some recharge estimates for the watershed using alternative modeling approaches. A description of these alternative models and the model results are presented as an attachment to this review.

General comments on approach--A watershed model was used to calculate "recoverable water" in the basin. Recoverable water is defined in the Draft Report as the total amount of surface runoff and infiltrating water that reaches the ground-water surface. The two terms were not discussed separately in the text of the Draft Report; however, they were separated in model results presented in Appendix F.

The watershed model incorporates the Thornthwaite equation to estimate daily potential evapotranspiration and an additional routine to estimate soil infiltration. The Thornthwaite equations yields estimates of potential evapotranspiration that are smaller than estimates produced using other approaches (Dingman, 1994) and, as a result, this model will tend to overestimate infiltration and runoff when compared to other methods. The model then calculates infiltration by subtracting surface runoff and vegetation interception from daily precipitation. The model does not account for soil water storage and subsequent withdrawal by plants. Vegetation in desert environments is very efficient at extracting soil water from great depths. For example, creosote has been reported to extract water from depths as great as 6 meters below

land surface. Numerous studies show that infiltration to depths below this thick root zone does not occur in desert basins--and soluble salts such as chloride accumulate just below the root zone (Phillips, 1994; Prudic, 1994; Izbicki et al., 1998). The amount of infiltrating water that reaches the water table approaches zero in most of the basin and water-potential data from other studies in desert basins suggest that water (in the form of vapor) may move upward from the water table to the root zone in many areas (Prudic, 1994). No field data or other evidence supporting infiltration to depths below the root zone for any of the soil groups is presented in the Draft Report. These issues are discussed in greater depth in the review of Section 6.7 --'"Estimates of ground-water recharge using a chloride mass balance approach."

A small amount of infiltration and subsequent recharge may occur in desert basins where water accumulates in topographic depressions. These areas include natural topographic depressions, such as certain playas (Osterkamp and Wood, 1987), man-made depressions, such as bomb-blast craters at the Nevada Test Site (Tyler et al., 1992; Pohl, 1996), and intermittent streams (Scanlon, 1994; Izbicki et al., 1998; Nimmo, 1999). As a group, these studies uniformly conclude that infiltration and subsequent ground-water recharge from these areas is small. The model does not incorporate any routines to route water through the surface drainage network and estimate downstream flows and subsequent infiltration. The existence of runoff does not imply that that water will infiltrate farther downstream in the basin. Although isotopic data are cited in the Draft Report as evidence of infiltration from washes, review of Section 9.3.3 "Evaluation of Groundwater Age Using Isotopes," suggests that the isotopic data presented in the Draft Report actually show that the amount of water from infiltration of surface flows is small. No other field data or evidence of infiltration from washes is presented in the Draft Report. An estimate of the "recoverable water" in the basin using data from the Draft Report and data from studies in similar areas is presented in the "Conclusion" section of this review.

The watershed model is a detailed daily water budget model: daily precipitation, infiltration, runoff, vegetation interception, evapotranspiration, soil moisture, and percolation are addressed. The model results provide an estimate of the recoverable water. It appears that the model does not account for bedrock permeability, and this may become an important factor for upland areas with shallow soils underlain by low permeability granites and metamorphics. For example, soil unit D defines an important watershed modeling unit that is used to subdivide the watershed model into areas of similar characteristics. For soil unit D, these are predominantly upland areas with shallow soils and thus the permeability of the underlying bedrock may have an important effect. It may be incorrect to assume that the hydrologic response for soil unit D will be similar for all locations covered by this soil type (even if the soil area is subdivided on the basis of the isohyets). There may be important differences in the hydrologic response of this model unit between areas underlain by low permeability bedrock and areas underlain by high permeability bedrock. It would be important to incorporate these differences into the watershed model, at least for soil unit D, because the model unit defined by this soil class on average has the highest computed recharge rates.

Page 47, 6.2, Description of the Bristol, Cadiz and Fenner Watershed Model. Each of the three basins is subdivided into hydrologic or modeling response units. For the Fenner watershed, five sub-areas are defined on the basis of soil types (A, B, C, and D) and an additional subdivision based on precipitation isohyets for subdivision for D. The long-term isohyetal map

is based on precipitation records from Twentynine Palms, Amboy, Needles, Mitchell Caverns, Mountain Pass, Kelso, and Yucca Grove. There are additional stations in the region surrounding the Cadiz study area that could have been used in the watershed modeling to obtain a more accurate representation of daily precipitation (e.g., Iron Mountain, Searchlight, Joshua Tree, Baker, Eagle Mountaint, and Parker).

Page 49, 6.2.1, Delineation of Model Subareas. The Bristol, Cadiz, and Fenner watersheds define the total watershed model area. A total of 11 subareas are defined for the three watershed areas. How were topographic effects such as differences in slope, aspect, and drainage characteristics, taken into consideration in the subarea boundaries?

Most recharge is simulated in the watershed model as occurring in soil group D. These soils should have limited rates of percolation (recharge) and high rates of runoff because of the impervious bedrock that underlies this soil type. If these soils have high runoff potential and are underlain by low-permeability bedrock, why are the highest recharge rates occurring at these locations (according to the watershed model)? There is no justification in the report for all the recharge occurring in the bedrock areas.

6.3 Model Parameter Determination

Page 52, 6.3.2, Soil Curve Number and Surface Runoff. No comments.

Page 54, 6.3.3, Temperature and Evapotranspiration. Thornthwaite's formula is cited but no reference is given. There is no way to know if this equation considers the lack of vegetation. The alpha coefficient (ratio of soil moisture to field capacity) is not the appropriate function for soil evapotranspiration. The method selected comes from Thornthwaite and Mather (see Hanks and Ashcroft, 1980, fig 4.6, pg. 115). A more appropriate function for the Mojave region is the modified Priestley-Taylor function (Flint and Childs, 1990), but only when vegetative cover is accounted for (Stannard, 1993). The assumptions in the Draft Report would underestimate evapotranspiration and therefore overestimate recharge.

Page 56, 6.3.4, Infiltration, Vegetation Interception, Soil Moisture, and Percolation. The estimates of potential evapotranspiration, 0.12 to 0.434 inches per day, seem high. The assumption that if soil moisture exceeds field capacity precipitation will percolate downward to replenish ground-water storage is questionable without accounting for the bedrock permeability under shallow soils, which is where most of the model calculated recharge comes from. Low-permeability bedrock holds excess soil moisture in the root zone where it may be removed by evapotranspiration processes. The rate of recharge in these situations is limited to the permeability of the bedrock and must be accounted for. Also see the equation for percolation on p. 57, which needs to account for bedrock permeability.

Page 57, 6.3.5, Assumption for Soil Thickness, Initial Soil Moisture, Field Capacity, and Apparent Specific Gravity. The estimates of field capacity are below the range that would be calculated from the STATSGO database, 13 to 17% for soil type D in the Providence Mountains area. For the same general area as soil type D, estimates using the STATSGO database would be 17--24%. The soil thickness for the shallow soils seems reasonable, but the soil thickness for the

deeper soils is in error. Although taxonomically the soils may be less than 2 meters (6 feet), the rooting depth, and therefore the evapotranspiration depth is much deeper, perhaps as much as 6 meters (20 feet). This is particularly important for channels.

6.4 Sensitivity and Uncertainty of Model Parameters. The model sensitivity analysis does not test the entire reasonable range of field capacity and soil thickness. These are two of the most sensitive parameters. If the true range of these two parameters were tested, the model would show a larger range and significantly less water would be simulated as being recharged.

6.5 Validation of Watershed Model Methodology. This section is much too brief. There needs to be more information provided on the Big Sandy Valley watershed so that basin characteristics can be compared. Western Arizona has a much different climate characteristic than southeastern California because of an increase in average elevations eastward towards Arizona and increased moisture input from the Gulf of Mexico, primarily during the Southwestern Summer Monsoon. In general, the climate is wetter and cooler, with more precipitation occurring as snow and a higher frequency of intense storms during the monsoon season. These differences in precipitation characteristics must be understood and accounted for before a model that is calibrated in Big Sandy Valley can be assumed to be a calibrated model in the Cadiz study area. In addition to differences in climate, differences in basin characteristics, such as topography, vegetation, soils, and geology, may cause non-transferability of a calibrated model. In general, there is an important transition from granitics and metamorphic rocks in southeastern California to sedimentary and volcanic rocks moving eastward onto the Colorado Plateau. Also, there is an increase in vegetation density with an increase in coniferous vegetation type and also in grasses moving eastward onto the Colorado Plateau.

The comparison of a recoverable water estimate between average simulated and measured watershed outflow is not very meaningful in terms of model calibration, especially when calibrating a model to be used in a different basin. The best way to determine if the hydrologic characteristics and processes in a watershed have been adequately represented by a model is to compare the hydrographs of simulated and measured daily watershed outflow because the timing, duration, and intensity of runoff events are much more indicative of watershed characteristics than mean outflow rates.

6.6 Water Balance for the Bristol, Cadiz, and Fenner Watersheds. How was it determined that the basins are closed basins? Show data that supports that there is no inflow or outflow from upgradient and downgradient basins.

Page 59, 6.6.1, Outflow Terms-Groundwater Pumping. Agricultural pumping is estimated at 5,026 acre-feet per year. Were return flows considered in the budget or are the fields drained?

Page 60, 6.6.2, Evaporation Loss from Dry Lakes. The Draft Report states that a wide range of methods are used for determining evapotranspiration rates in playa settings. Because of the importance of accurately determining this number, there should have been an effort to use an energy balance (Czarnecki, 1997; Laczniak and others, 1999) or salt scraping method (Lines, 1979, described below) to estimate the evaporation from the playa.

Page 60, 6.6.2.1, Determination of Evaporation Area. The Draft Report assumes that evaporation occurs over the entire surface area of Bristol and Cadiz dry lakes on the basis of the assumption of shallow depths to water. The report references Moyle (1967) as support for "shallow" depths to water. Plotting the water levels presented in Moyle (1967) indicates that the depth to water exceeds 10 feet throughout most of Bristol dry lake. Water levels beneath the eastern third of the dry lake range from 30 to 54 feet below land surface. Kunkel and Chase (1969) revised estimates of Lee (1913) for bare-soil evaporation from different depths to ground water in Indian Wells Valley, California. In their study they estimated that the annual rate of evaporation from bare soil decreased to negligible amounts at water-level depths of more than 7 feet below land surface. The Draft Report sites "puffy" soil as evidence of capillary movement of shallow water. How did this study differentiate between shallow perched water (remnant from local runoff--see Volume 1, figure 10--Photograph of Bristol Dry Lake during Flood Conditions) and regional ground-water evaporation? The total area of Bristol and Cadiz dry lakes is reported to be 41,600 and 29,788 acres, respectively (table 8, Volume1). However, the value calculated utilizing the geologic data presented by the Department of Defense (1998) and digitizing the geologic map of Kupfer and Bassett (1962) is 40,972 acres for Bristol and 17,485 acres for Cadiz. What is the reason for the large discrepancy in values for Cadiz dry lake? In any case, on the basis of the water-level data presented in Moyle (1967) the area used to calculate the evaporation is too large. Also it should be determined if there is a perched water body at the lakebed. If the water body is perched, then the evaporation from the lakebed can not be used to calculate discharge from the regional aquifer.

Page 60, 6.6.2.1, Estimated Evapotranspiration Loss. The Draft Report neglects to account for direct recharge of precipitation and runoff on the dry lakes, and assumes all the evaporation is from ground water that has originated north of Fenner Gap. As shown on figure 10 of Volume 1 (Photograph of Bristol Dry Lake During Flood Conditions), the dry lakebeds become lakes during rainfall events. In a study of the Bonneville Salt Flats, Turk (1973, p. 73) found that infiltration rates ranged from 2.5 to 4.0 feet per day on the salt crust and from 0.4 to 1.4 feet per day in areas of clay and silt. Clearly the infiltration of ponded water on the lakebeds needs to be addressed in the water balance. The Draft Report references Todd (1980) for the evapotranspiration rates used in table 8 to calculate total evapotranspiration. Todd (1980) states that for water tables within 1 meter of ground surface, evaporation is largely controlled by atmospheric conditions; but below this depth, soil properties become limiting and the rate decreases markedly with depth. Todd (1980) presents data only to about 7 feet below land surface (about 2% of pan evaporation). As stated above, Moyle's (1967) data indicate that the depth to water beneath most of Bristol dry lake exceeds 10 feet. Therefore, one should use values less than 2% (0.26 feet per year) to estimate the total evaporation. As stated in Todd (1980), evaporation is limited by soil properties at depths greater than 3 feet. The presence of a salt crust further limits the evaporation.

In a study of the Bonneville Salt Flats, Lines (1979) scraped halite (NaCl) that had accumulated on the surface of the dry lakebed sediments to determine the evaporation of ground water from the barren surface. Lines (1979, p. 86-89) estimated that the evaporation during May-December 1976 ranged from about 0.0025 to 0.00042 inch per day. The estimates were made using the weight of halite that had accumulated at land surface on 2 square-foot plots and the concentration of NaCl in the evaporating shallow brine, which averaged about 295 grams per liter. Ground-

water levels at the study plots declined during the summer and fall, but ranged from 0.21 to 2.21 feet below land surface. Similarly, Feth and Brown (1962, p. 100-101) scraped salt from dry mudflats near the edge of the Great Salt Lake during the summer of 1954, and they determined that ground-water evaporation rates at land surface averaged about 0.003 inch per day. Assuming an average evaporation rate of 0.003 inch per day from the surface of Bristol and Cadiz dry lakes (total of 71,388 acres from table 8 or 58,457 acres from the Mojave Desert Ecosystem Program (1998)) and that evaporation is negligible during the winter (December through February), evaporation of ground water from the two dry lakes could be no more than about 6,500 to 5,300 acre-feet per year depending on what value is used for the lakebed area. An ongoing study by the USGS in Death Valley has measured rates of about 0.17 feet per year on a salt playa (salt crust) where the depth to water was less than 1 foot and 0.27 feet per year on a bare soil with some salt mix where the depth to water was 1 to 2 feet (Guy DeMeo, USGS, WRD, Las Vegas, Nevada, written communication, 2000).

Clearly the values for evaporation and areas of potential evaporation are too large as presented in table 8. If one uses the Death Valley number for the evaporation rate (0.17 feet per year) and multiplies that by the area of the dry lake playa surface digitized from the Kupfer and Basset (1962) geologic map (58,457 acres), the estimate evaporation is 9,900 acre-feet per year. The evaporation rate estimated in the report (20,000 to 71,000 acre-feet per year) is unreasonable on the basis of depth to water and soil characteristics, and needs to be significantly reduced. The area of potential evaporation also needs to be reduced significantly.

Page 61, 6.6.3, Total Outflow. The total outflow is stated to be 76,000 acre-feet per year. As stated above, the estimate of evaporation from the dry lakes is too high and needs to be recalculated using lower evaporation rates and smaller areas of potential evaporation. Therefore, this estimate for total outflow is too large. If there was in fact this much ground-water discharge at the dry lakes, one would expect to see springs and vegetation similar to Ash Meadows in Nevada (see Laczniak and others, 1999). To put things in perspective, the estimated evapotranspiration along the entire reach of the Mojave River (Victorville to Afton Canyon) is about 17,000 acre-feet per year (Lines and Bilhorn, 1996). The Mojave River area has areas of perennial flow and riparian habitat.

6.7 Estimates of Groundwater Recharge Using a Chloride Mass Balance Approach. The chloride mass balance approach and associated equations presented in this section are derived from regional recharge studies of the High Plains aquifer (Wood and Sanford, 1995). This is a much different environment than Bristol, Cadiz, or Fenner basins. Although semi-arid, the High Plains receive between 13 and 22 inches per year of precipitation, areal recharge occurs through the unsaturated zone. In contrast, precipitation in the study area is about 7 inches per year and the assumptions associated with the approach as described in the Draft Report are not valid (Wood, 1999). Violation of these assumptions is discussed in the Draft Report; however, this is not a matter of using an approach, violating a few assumptions and qualifying the results--it is a matter of using a completely wrong approach.

There is an alternative chloride mass-balance approach for arid regions where assumptions needed to use the Wood and Sanford (1995) approach are not valid. In contrast to estimates of recharge described in the Draft Report, when properly applied the chloride mass-balance

approach is used to estimate the time since recharge has last occurred. Phillips (1994) described the use of the chloride mass balance approach for alluvial basins in the arid portions of the Southwestern United States. In the Mojave Desert, the approach has been applied near the study site at Ward Valley (Prudic, 1994; National Research Council, 1995), at the Nevada Test Site (Tyler et al., 1995), and in the western part of the Mojave Desert (Izbicki et al., 1998). Although the hydrology at specific sites differ, the general conclusions from these studies is that chloride has been accumulating in the unsaturated zones for 13,000 years in western part of the Mojave Desert (Izbicki et al., 1998) to as long as 58,000 years in Ward Valley adjacent to Fenner Valley. This is a different result than the 40,000 acre-feet of annual recharge estimated using the chloride mass-balance approach for Fenner Valley in this Draft Report.

Although the data needed to calculate the time since recharge were not collected as part of this study, the report indicates that chloride and other soluble salts have accumulated in the unsaturated zone beneath Fenner Valley. On the basis of increased dissolved solids and chloride concentrations as high as 933 mg/L measured in monitoring wells after water from the test recharge basins in Fenner Gap through the unsaturated zone to the water table, a large amount of chloride has accumulated in the unsaturated zone at the test site and it has been a long time since recharge has occurred through the unsaturated zone at this location. Data from this Draft Report, and from all other studies done in the Mojave Desert, are consistent and indicate that only negligible recharge occurs on the alluvial valley floors of desert basins. In addition, there is a large body of literature from other parts of the American Southwest, Australia, and arid zones throughout the world that supports this conclusion.

Dettinger (1989) estimated that some recharge may occur to alluvial basins in Nevada as a result of precipitation, runoff, and infiltration at higher altitudes. The chloride mass-balance approach described by Wood (1999) may (with great uncertainty) be applied to these areas to estimate an upper limit on recharge to Fenner basin. Assuming that recharge in the Fenner basin only occurs from precipitation at altitudes greater than 4,000 feet (Dettinger, 1989), recharge to Fenner basin is about 1,710 acre-feet per year. This value was estimated using the chloride mass balance approach as follows:

$$Q = [(P^*Cl_p) / Cl_{gw}] A_{4000}$$

where P is average annual precipitation about 10 inches per year (0.83 feet per year) (this Draft Report);
Cl_p is the chloride concentration in precipitation from the Mojave Desert, about 0.8 mg/L;
Cl_{gw} is the chloride concentration in ground water from Fenner Gap monitoring wells, about 49 mg/L. This value excludes low chloride concentrations in water from agricultural wells operated by Cadiz Inc. (this Draft Report); and
A_{4000} is the area of the basin above 4,000 feet, about 126,000 acres.

The average chloride concentration used in this calculation is subject to uncertainty. The value used in these calculations is the value used for bulk precipitation in chloride mass-balance calculations for Ward Valley (Prudic, 1994). This value is higher than the volume-weighted mean chloride concentration measured in precipitation at National Atmospheric Deposition

Program (NADP) site at Red Rock, Nevada. This site has been operated for 14 years and is the best data for the region. However, data from the NADP sites are wet-fall only (rain, snow, etc.); these data do not include dry-fall (dust, particulates, ect.). This value also is higher than the chloride concentration for bulk precipitation of 0.4 mg/L measured for precipitation by Dettinger (1989) to estimate ground water recharge in 16 basins in Nevada. This value is lower than the chloride concentration of 3.5 mg/L used in this Draft Report to estimate recharge in Fenner Valley.

At best, recharge estimates calculated using the chloride mass balance approach described by Wood and Sanford (1995) provide an upper limit on ground-water recharge from higher altitudes in the Fenner basin. Dettinger's (1989) work was for basins farther north in Nevada and may not be directly transferable to Fenner Valley. For example, there may not be large quantities of recharge at altitudes greater than 4,000 feet in the southern California Desert and chloride may be accumulating in the unsaturated zone in that part of the basin. No data are provided in the Draft Report to demonstrate that infiltration to depths below the root zone and subsequent ground-water recharge occur in the study area at altitudes greater than 4,000 feet.

If the chloride mass-balance method is applied but the deposition rate is 0.8 mg/L, which is what has been recommended for Ward Valley, and if you assume that all the recharge comes from soil type D then the method alone would calculate a recharge of 3,000 acre-feet per yearr. Even if you use the entire Fenner watershed area, rather that soil type D, the recharge would be 9,000 acre-feet per year. The 3.5 mg/L accumulation number used is much higher than most other researchers would use.

6.8 Groundwater Storage Estimates

Page 64, 6.8.1, Groundwater Storage Estimates for the Fenner Watershed. Estimates of ground-water storage using this methodology are misleading. Although there are large amounts of ground water in storage, much of this water is difficult to extract owing to decreased permeability with depth. In addition, the water chemistry of the deeper sediments in most desert basins contains high concentrations of fluoride, arsenic, and other trace elements.

Page 64, 6.8.1.1, Procedure. As stated earlier in the review, there appears to be a problem with the depth to bedrock map. Where checked with borehole data presented in the Draft Report, the depth to bedrock map overestimated the depth to bedrock. The specific yield values will decrease with depth in the aquifer, because of cementation and compaction of the sediments.

Page 65, 6.8.1.2, Parameters Used for Storage Calculation. Same comments as above.

Page 66, 6.8.1.3, Results. Need a statement indicating that not all of this could be extracted economically and the water chemistry of this water may be greater than drinking-water standards for some constituents.

Page 67, 6.8.2, Groundwater Storage Estimates for the Project Area. The estimate is based on the depth to bedrock map presented in the Draft Report (figure 17). As stated above, this map appears to overestimate the depth to bedrock.

7.0--FENNER GAP PILOT INFILTRATION TEST

Overall the largest weakness with this section is the lack of a numerical model. A pre-experiment model, using the soil parameters estimated from field and laboratory analysis, should have been conducted. This step is a critical part to any large-scale field experiment. The results would demonstrate the adequacy (or inadequacy) of the estimated parameters. Modeling of the unsaturated zone is a much more difficult part of the study than modeling of the saturated zone. The non-linearity of the relation between water content and water potential is critical in understanding the response of the system to continual ponding. The hydrologic characterization of the unsaturated (vadose) zone is still a critical part of site characterization. The demonstration of adequate data and understanding are needed to show how the system will respond to long-term ponding (and infiltration) and pumping. Post-experiment modeling (history matching) would help to further develop the hydrologic properties of the unsaturated zone using standard inverse methods.

7.1 Pilot Spreading Basin. What is the rationale for requiring 200 feet of a saturated alluvial aquifer? Should not the requirement be for a specified unsaturated alluvial thickness because the artificial recharge and mounding will occur above the water table? Again a model would be helpful in defending, or providing rationale for assessing, the thickness required for the saturated or unsaturated zone.

7.3 Pilot Test Field Testing. Report should include plots of the pumping-test data. Show the type-curve matches for determining aquifer characteristics (Ttansmissivity and Storage). How were the gypsum blocks isolated in the boreholes? Were bentonite seals placed in the holes to prevent preferential flow through the borehole?

Page 76, 7.3.4.1, Principle of Operation. The resistance between the two probes is calculated from voltage measurements made in the gypsum blocks. The resistance is converted to water potential using a calibration equation. This section incorrectly states that the sensors measure water potential which is converted to Kohms (this appears to be just a misstatement). Heat dissipation probes, which are a much better measures of water potential, should have been used. They would provide data necessary for modeling.

Page 77, 7.4, Eight-Month Infiltration Test Monitoring. Was the model used to simulate the drawdown at the pumping well and the mounding beneath the ponds? This would be useful to help calibrate the model on a local scale. The model could then be used to predict water-level changes resulting from the larger scale project.

Page 77, 7.4.1, Climatological Data. What is the "evapotranspiration monitor" on the weatherstation and why were solar radiation measurements, the driving force for evapotranspiration, not measured during the study period?

Page 77, 7.4.4.2, Single-Ring Infiltrometer Field Tests. Is the reference to Bouwer (1998) the 1989 reference? The method employed is not as straight forward as other infiltrometer methods.

A long-term measurement (greater than 6 hours), where lateral flow is less important, would give a better measure of the expected conditions in the similar, but larger, ponded area.

7.5 Water Quality Monitoring

Page 83, 7.5.2, Sampling Procedure. Some wells may not have been completely purged prior to sample collection using the procedure described in the Draft Report. For example, monitoring well CI-1 is 420 feet deep and the depth to water is about 300 feet. Given a casing diameter of 2 inches, about 19 gallons of water are in the casing. According to procedures described in the Draft Report, only 6 liters of water (about 1.5 gallons) were removed from each well prior to sample collection. The sampling procedure increases uncertainty associated with the interpretation of chemical and isotopic data presented in the Draft Report.

Page 85, 7.5.3.2, Baseline Analyses-General Suite. Comments for this section also include comments on results of chemical analyses presented in table 12 and Appendix U.

Results of chemical analyses show that background water quality from the Fenner Gap monitoring wells has a relatively wide range in dissolved solids from 267 to 1,040 mg/L. On the basis of Stiff diagrams presented in Appendix U most water is sodium bicarbonate or sodium bicarbonate-sulfate in chemical composition. No baseline water-quality samples from monitoring wells in Fenner Gap had a calcium bicarbonate composition and high pH (greater than 9.0) that would be expected for water from Schuyler Wash that infiltrated through a thick unsaturated zone to recharge the underlying ground water. As a result, chemical data are not consistent with large amounts of infiltration from the wash as interpreted in the Draft Report. It is interesting to note that after water from the test recharge ponds infiltrated through the unsaturated zone to the water table, water from the monitoring wells became increasing calcium bicarbonate in chemical composition (table 22).

Page 85, 7.5.3.3, Baseline Analyses-Isotopes. Comments for this section are included in comments for section 9.3.3 "Evaluation of groundwater age using isotopes."

8.0--CADIZ GROUNDWATER MODEL

8.1 Model Development. Please clearly explain for what purpose the models were developed.

Page 94, 8.1.1, Conceptual Model. The conceptualizations of model layers 2 and 3 are not clear. Semiconfined is insufficient information. In MODFLOW, are these layers confined or confined/unconfined (LAYCON=2 or 3)? On the basis of Plate 3, there may be continuous clay layers; you choose to assume them to be discontinuous.

Page 95, 8.1.2.1, MODFLOW Model. Please clearly explain and defend the nonuse of the fault (HFB) package given the high degree of faulting in the study area. The northwest/southeast trending faults may be barriers to ground-water flow and should be incorporated into the model.

Page 97, 8.1.2.2, MT3D Model. Please clearly explain and defend the use of MT3D, a nondensity-dependent transport model, to model brine transport. Water with high TDS

concentrations (about 300,000 mg/L beneath Bristol dry lake) has a greater density than freshwater. This greater density will affect the physics of the flow system; therefore, in order to estimate the potential impact of the proposed project on the movement of the high-density brine one must use a density-dependent ground-water flow and transport model. To determine the potential impacts of the proposed project on the salt playas, a density-dependent transport model is needed.

Page 98, 8.1.2.3, Pre- and Post-Processors. No comments

Page 98, 8.1.3, Model Size, Grid Geometry and Boundary Conditions. Please show a typical model cross-section.

8.1.4 Flow Model Aquifer Parameters

Page 99, 8.1.4.1, General. Please use specific yield instead of effective porosity (effective porosity is used later in the report as a porosity). It is stated much later in the report that layer 2 is confined/unconfined; therefore, the top elevation of this layer is required. I assume that layer 3 is confined, although it is never stated. Define "mathematically superimposing" and "appropriate gridding algorithm."

Page 100, 8.1.4.2, Elevations of Aquifer Boundaries. Move this section to Section 8.1.3. How were the elevations determined? As stated earlier in the review, the bottom elevation of the upper aquifer in Fenner Gap is too low.

Page 100, 8.1.4.4, Hydraulic Conductivity and Transmissivity. Note that Jacob's method is valid only for confined aquifers; therefore, is not applicable to layer 1 data. The use of the screened interval to calculate K can overestimate the K value. The well efficiency is not normally used to estimate T from specific capacity data (see Driscoll, 1987) and will overestimate T. Please provide a reference for the E-log sequential method and show example calculations. How were K-values adjusted using clay percentages and what is the basis for this adjustment? Give specific clay percentages used in table 14. Show point estimates of hydraulic conductivity and transmissivity on contour maps (figures 61-64) for comparison. Overlaying figures 60, 62 and 63, the hydraulic conductivity and transmissivity contours do not appear to be consistent. A map with the model grid and associated parameter values for all layers needs to be presented in the Draft Report.

Data for the aquifer tests presented in table 14 need to be presented in the Draft Report or be in a published document. The USGS logged well 5N/14E-13 shown in the table 14. Inspection of the geologic log for this well indicated that the sediments were poorly sorted, gravelly sand and silt with increasing silt content with depth. On the basis of this lithologic description, it is difficult to justify an average hydraulic conductivity of 699 gallons per day per foot squared ($gpd/ft^{2)}$. An average value of 100 gpd/ft^2 would be the highest that one would expect for these materials. What was the pumping rate for this test? Also, why is this well assigned to layer 2 when the well is perforated at the water table? According to Plate 3, most of this well is perforated in layer 1. The upper estimate of the layer-2 transmissivity seems too high. From your description of the layer-2 materials, the hydraulic conductivity values may be in the range

of 1 to 10 gpd/ft^2 (Freeze and Cherry, 1979). The layer-3 transmissivity values are too high. For sandstone the transmissivity values should range between 0.4-4000 gallons per day per foot (gpd/ft) and for carbonate rocks the transmissivity values should range between 4-4000 gpd/ft (Freeze and Cherry, 1979).

In general, the hydraulic conductivity and transmissivity values are too high, which allows the high flux rates that are assumed in the model. The pumping-test data presented in the Draft Report for well PW-1 (Appendix M) indicate a specific capacity of about 200 gpm/ft. The empirical equation used to estimate transmissivity from specific capacity in a unconfined aquifer is to multiply the specific capacity (gallons per minute per foot) by 1,500 to give transmissivity (gpd/ft) (Driscoll, 1987, p. 1021). Using this equation for the well PW-1 data indicates that the transmissivity of the aquifer near well PW-1 is 300,000 gpd/ft. Dividing this estimated transmissivity by the perforated interval of the well (500 feet) will give an estimate of the average hydraulic conductivity--in this case 600 gpd/ft^2. This value is about 70% of the value estimated on table 14 (851 gpd/ft^2). On table 14, it is assumed that well PW-1 is only perforated in 36 feet of layer 1. On plate 3 of the Draft Report it appears that layer has been placed at an elevation of 300 feet, which would indicate that well PW-1 is perforated in about 300 feet of layer 1. In table 14, the hydraulic conductivity of layer 1 is assumed to be 2.7 times the hydraulic conductivity of layer 2. Assuming this ratio is correct, the estimated hydraulic conductivity values at PW-1 are 800 and 300 gpd/ft^2 for layers 1 and 2; respectively. It is clear that the adjusted hydraulic conductivities estimated for this well in table 14 (1,835 gpd/ft^2 for layer 1 and 680 gpd/ft^2 for layer 2) are too large. Using lower values would decrease the allowable flux rate.

Page 103, 8.1.4.5, Vertical Leakance. Vertical leakance (VCONT) is calculated using vertical K values not horizontal K values. Assuming anisotropies of 1 to 2 orders of magnitude may greatly reduce the calculated VCONT values. Lower VCONT values can lead to greater stratified flow than is currently being modeled.

8.1.5 MT3D Model Aquifer Parameters

Page 104, 8.1.5.2, Aquifer Thickness. Thickness of aquifer units in the Fenner Gap needs to be reduced.

Page 105, 8.1.5.3, Longitudinal and Transverse Dispersivity. The longitudinal dispersivity value of 50 feet seems small. Gelhar et al. (1992) report that at the field scale (greater than 1,000 meters), longitudinal dispersivity values of about 100 meters (greater than 300 feet). Anecdotally, other researchers have used longitudinal dispersivity values on the order of their grid spacing. The use of small dispersivity values will sharpen the solute front and allow less spreading than would a larger value.

Page 105, 8.1.5.4, Total Dissolved Solids Concentrations. Review of the data in table 22 shows that prior to artificial recharge in the Fenner Gap area dissolved solids concentrations in some wells were as high as 1,040 mg/L. This is higher than the 300 to 400 mg/L reported in the Draft Report. It is not clear from the Draft Report why wells having high dissolved-solids water

were sampled only one time or why this water was not analyzed for stable isotope or carbon-14 activity.

8.1.6 Recharge and Discharge

Page 106, 8.1.6.2, Subsurface Inflow. Show locations of injection wells on a figure. Into which layer was water injected?

Page 106, 8.1.6.3, Areal Recharge. Show recharge cells on a figure.

Page 106, 8.1.6.4, Ground-water Pumping. Pumping information does not match data presented on page 43.

Page 107, 8.1.6.5, Evapotranspiration. Show the ET cells on a figure. Justify the use of an extinction depth of 100 feet; this value seems to be much too large; it should be less than 10 feet for bare-soil evaporation. Using a too large extinction depth allows much more flux to leave the system than if a smaller value were used. State the values of the ET surface and the maximum ET used in the model.

8.2 Model Calibration

Page 107, 8.2.1, Selection of Calibration Period. The discussion of the calibration period makes no sense. Why is the precipitation record important? It seems that the pumping record would have a greater impact on the ground-water system. How is 1958-85 a steady-state condition? How is this implemented in the model? Compare the simulated steady-state water levels with measured, predevelopment water levels.

Page 108, 8.2.2, Discussion of Calibration Process. What do you mean by "Therefore, for the purposes of this model, the model-generated water levels beneath Bristol and Cadiz dry lakes were not used and were considered boundary conditions"? If the simulated water levels beneath the lakes are 40 to 80 feet below measured water levels, this indicates that the simulated initial conditions are much too low and the model should be recalibrated. Note that most of the calibrated water levels in the northern part of the model area (e.g., figures X-13 and X-15) are 20 to 40 feet higher than measured water levels. This information, coupled with the lower-than-measured lake water levels, indicates a simulated gradient greater than measured conditions. This implies that even though overestimated T values are used in the model, the model could not transmit the estimated inflows without increasing the simulated hydraulic gradient.

Page 109, 8.2.3, Discussion of Model Calculated Recharge and Discharge. The report states that the model simulated recharge term (50,000 acre-feet per year) is supported by the stable water level trends. As described below, the water levels were not stable. The model could not simulate 50,000 acre-feet per year discharge without having an unreasonable evaporation extinction depth (100 feet) and the resulting simulated water levels at the dry lakes were 50 feet too low. In addition, the simulated water-level gradient through the Fenner Gap was greater than the measured gradient, even using unreasonably high transmissivity values. The model results indicate that the conceptual model is incorrect.

Page 110, 8.2.4, Discussion of Model-Generated Water Levels. Show the simulated steady-state water levels. Published data indicate that steady-state water levels were about 600-625 feet around the project area; these data are 40 or more feet higher than the initial water levels shown in figures X-4 to X-15. This indicates that the steady-state water levels were underestimated throughout the model domain. Show measured water levels on simulated water-level contour figures. The model underestimates the water-level declines at the Cadiz agricultural well field. The model fit appears reasonable at the scale plotted; however, if the measured data ranges only on the order of 25 feet for the period of simulation, one should not plot it on a scale that has a range of 400 feet. The model results need to be replotted on a reasonable scale and consideration should be given to predevelopment water-level measurements in the area (Moyle, 1967). As stated previously, the model does a poor job of simulating the water-level gradient north of Fenner Gap.

The model needs to be recalibrated, starting with steady-state conditions. The model needs to be able to simulate the observed water levels and gradients. Matching the water levels at Cadiz and Bristol dry lakes will be an important element of the calibration process. Initial calibration might include using the MODFLOW drain function to simulate discharge at the dry lakes.

8.2.5 Discussion of Water Budget

Page 112, 8.2.5.1, Water Balance Analysis. The water budget is meaningless because the model does not correctly simulate the water levels beneath the dry lakes.

Page 113, 8.2.5.2, Natural Recharge to the Cadiz Project Wellfield. The value of 30,000 acre-feet per year of recharge is based on an invalid model. As stated above, the gradient simulated by the model is too high through the Fenner Gap, even using unreasonably high transmissivity values. Earlier in the report it is stated that all the recharge originates from the mountains in Fenner Valley. If 30,000 acre-feet per year is simulated as moving through Fenner Gap, where does the model simulate the remaining 20,000 acre-feet per year recharge to the system?

8.3 Evaluation of Project Operational Scenarios Using the Cadiz Groundwater Model. The following sections discussing the operational scenarios (Sections 8.3.1-8.3.6) were not reviewed, because the model needs to be recalibrated before using it to predict future scenarios.

8.4 Evaluation of Subsidence

Page 116, 8.4.2, Description of Subsidence Simulation Model. As most readers will not be familiar with Helm's model, please present the model with all assumptions.

Page 116, 8.4.3, Model Input Data Parameters. Were the proposed spreading basins included as one of the modeled sites? The overburden of the water may cause increased subsidence. Please show sites where model was applied on a figure.

Page 117, 8.4.3.1, Idealized Lithologic Log Development. What is an "idealized lithologic log"? Please show one.

Page 117, 8.4.3.2, Water levels. Where in the column are the boundary conditions defined?

Page 118, 8.4.3.5, Preconsolidation Stress. State the value of preconsolidation head used in the subsidence model. Compaction occurs after the head drops below the preconsolidation head; therefore, the timing of compaction is affected by the choice of this value.

Page 119, 8.4.4, Model Output. Please show the time varying subsidence for all 19 sites.

SECTION 9.0--RESULTS

9.1 Results of Evaluation of Water Resources

Page 120, 9.1.1, Results of Watershed Model. The Draft Report estimates that the total amount of recoverable water for the entire watershed ranges from 20,000 to 58,000 acre-feet per year, with a median value of 39,000 acre-feet per year. As discussed in great detail in the review of Section 6.0, there are major problems with the watershed model assumptions and results. The watershed model is a detailed daily water-budget model: daily precipitation, infiltration, runoff, vegetation interception, evapotranspiration, soil moisture, and percolation are addressed. However, the model does not address bedrock permeability, and this may become an important factor for upland areas with shallow soils underlain by low-permeability granites and metamorphics. For example, soil unit D defines an important watershed modeling unit that is used to subdivide the watershed model into areas of similar characteristics. For soil unit D, these are predominantly upland areas with shallow soils and thus the permeability of the underlying bedrock may have an important effect. The estimates of field capacity used in the model (13 to 17 %) are below the range that would be calculated from the STATSGO database for soil unit D in the Providence Mountains area. Estimates using the STATSGO database, for the same general area as soil unit D, would be 17 to 24 %. The soil thickness for the shallow soils seems reasonable, but the soil thickness for the deeper soils is in error. Although taxonomically the soils may be less than 2 meters, the rooting depth, and therefore the evapotranspiration depth, is much deeper. As shown in figure 26 of the Draft Report, field capacity and soil thickness are very sensitive parameters for the watershed model. Increasing the field capacity and/or the soil thickness will reduce the model-calculated recharge. Therefore, the range of recoverable water calculated by the watershed model used in the Draft Report would be larger (the low end would be lower and the high end would remain the same) and the resulting median value would be lower.

To test the reasonableness of the recharge values simulated by the Draft Report watershed model, the USGS developed two Maxey-Eakin water-balance models. The model development and model results are included as an attachment to this review. The median recharge rate estimated by the watershed model (39,077 acre-feet per year) is 3 to 15 times higher than the values estimated by the preliminary Maxey-Eakin models developed by the USGS (2,550 to 11,800 acre-feet per year). The quantity of recharge estimated with the watershed model appears to be an overestimate of the recharge and, therefore, the recharge rates should be reevaluated.

Page 121, 9.1.1.4, Groundwater Storage Capacity. This value is misleading in that it assumes that all of the water can be removed and that all of the water is of suitable quality. Table 10b of the Draft Report overestimates the thickness of layer 2 and overestimates the specific yield of the bedrock aquifer.

Page 121, 9.2, Geology of Fenner Gap. There are inconsistencies in the measured thickness of alluvium and the values and the depth to bedrock contour map presented in the Draft Report (figure 19). As indicated in the Draft Report, the difference in bedrock elevation between wells 5/14-13 and CI-2 suggest the presence of a fault. This fault and other faults in the area should be studied to determine if they are barriers or partial barriers to ground-water flow. These faults may compartmentalize the proposed recharge and change the proposed recharge/pumpage operation.

9.3 Geohydrology of Fenner Gap

Page 125, 9.3.1, Bedrock Aquifer. It is unclear from the data presented in the Draft Report that there is a bedrock aquifer in the study area. Additional geohydrologic and geochemical data need to be collected to determine the significance of the bedrock aquifer.

9.3.2 Alluvium

Page 129, 9.3.2.1, Geohydrologic Characteristics. The Draft Report presents results of a pumping test conducted for well PW-1. It is apparent from inspection of the data that water levels are being affected by leakage. Water levels made during the test indicate that actual drawdowns are less than those predicted by the Theis curve at larger values of time. This type of deviation generally reflects the presence of a lateral recharge boundary or a leaky aquifer. Because there are no apparent recharge boundaries, the departure from the curve probably is the result of leakage of ground water from overlying or underlying sediments. The transmissivity and storage coefficient of an aquifer affected by leakage may be solved by conventional methods of analysis on the basis of the Theis equation if the data are collected at or close to the pumped well. In general, drawdown data collected early in an aquifer test are affected by leakage to a lesser degree than data collected at a later time (Neuman and Witherspoon, 1972, p. 1291). Analysis of drawdown data collected from wells at a distance from the pumped well, and at later times tends to overestimate the transmissivity of the aquifer. Therefore, early time data (in this case 0.1 to 10 minutes after commencement of pumping) should be analyzed from the pumping well and close observation well. Data collected during the recovery phase will be affected by leakage and will overestimate the transmissivity.

Page 130, 9.3.2.2, Baseline Water Quality. Inspection of the trilinear diagram of water-quality samples for wells in the Fenner Gap indicate that there is a wide range of water quality in the gap. The Draft Report states that the difference is the result of development problems. However, when one inspects the data a definite pattern appears. Most of the wells in the gap are perforated only 100 feet below the water table. In general, these wells are sampling the upper alluvial aquifer. Wells in the southeastern part of the gap (wells MW-3, 5, and 6) have TDS values in excess of 500 mg/L and have high percentages of sodium. These wells may be

influenced from poor quality water from the underlying and surrounding bedrock. The thermal water sampled in Fenner Gap indicates upward flow from the underlying bedrock, possibly along fault zones. The two deepest wells (5/14-13 and PW-1) have the lowest TDS values (328 to 294 mg/L) of the wells sampled. These wells also have similar water chemistry, having a higher percentage of sulfate and calcium then samples from the other wells. As stated in the Draft Report, these wells appear to be on the downthrown (southwestern) side of a northwest-southeast trending fault. Wells CI-3 and MW-2 are probably also on the southwestern side of the fault; however, they have similar chemistry to the wells on the upthrown (northeastern) side of the fault. In addition, these wells are screened only in the upper 100 to 200 feet of the aquifer. This suggests that wells PW-1 and 5/14-13, which are perforated 500 to 300 feet beneath the water table, yield a large percentage of their water from the water-bearing deposits that are more than 100 feet below the water table. A velocity log and downhole sampling should be completed in these wells to identify the major water-bearing zones. In Fenner Gap, apon the northeastern side of the fault, water-bearing deposits are not as prevalent at depths of more than 100 feet below the water table. As shown on plate 3 of the Draft Report, a silt and clay layer is present at about 150 feet below the water table at wells PW-1 and CI-3. This fine-grained layer must separate the two types of water. It is interesting to note that the hydraulic head in well PW-1 is about 5 feet higher than the head in the nearby CI-3 well. The land-surface elevations should be resurveyed to verify this difference.

The source of water to the upper aquifer on the downgradient side of the fault probably is underflow through the Fenner Gap in the permeable deposits directly beneath the water table because the TDS and water types are similar. However, the source of water to the lower aquifer on the downgradient side of the fault cannot be solely underflow from Fenner Gap. The lower aquifer downgradient of the fault contains lower TDS and has different chemistry compared with upgradient wells in the Fenner Gap (see figure 80 in the Draft Report). Recharge along the Orange Blossom Wash may be the source of this water. Additional geochemical and isotopic data are needed from the deep wells to help answer this complex hydrologic puzzle.

Page 133, 9.3.3, Evaluation of Groundwater Age Using Isotopes. Comments presented for this section also include comments for isotopic data and correspondence from M. Lee Davisson of Lawrence Livermore National Laboratory from Appendix T.

General Comments--A number of controversial land uses have been proposed for the study area and adjacent basins--including the Bolo Landfill (RailCycle) and the low-level radioactive waste disposal site at Ward Valley. Because of the high profile of these proposed sites, the region has been extensively studied and there are a large amount of isotopic data collected in the study area and adjacent basins. Much of this previous work concluded that recharge in the area is small. Although data from these studies are readily available, it does not appear in the Draft Report. These data are important and have been included as part of this review (figure 1).

Comments on interpretation of oxygen-18 and deuterium data--The ∂D and $\partial^{18}O$ isotopic compositions of precipitation collected by Friedman et al. (1992) at Mitchell Caverns and at Amboy (near Bristol dry lake and closer to the study site) are different. Data from Mitchell Caverns plots on the meteoric water line. Data from Amboy plot on a line parallel to, but below, the meteoric water line. The isotopic composition of precipitation data at Amboy relative to the

meteoric water line is typical of precipitation in summer-dominated precipitation regimes of the Mojave Desert and across much of the arid southwestern United States. The isotopic composition of water from Mitchell Caverns is typical of water from cooler, higher altitude sites. The similarity in isotopic composition (both in absolute magnitude and position relative to the meteoric water line) of ground water sampled as part of the Draft Report in the Fenner Gap areas to precipitation at Mitchell Caverns suggests that the ground water originated as recharge from precipitation that fell at a higher altitude rather than from locally derived precipitation. This is consistent with the interpretation presented in the Draft Report and is not consistent with infiltration from Schulyer Wash. Mitchell Caverns and other higher altitude locations are many miles from the study site and ground-water flow paths through alluvial aquifers are long.

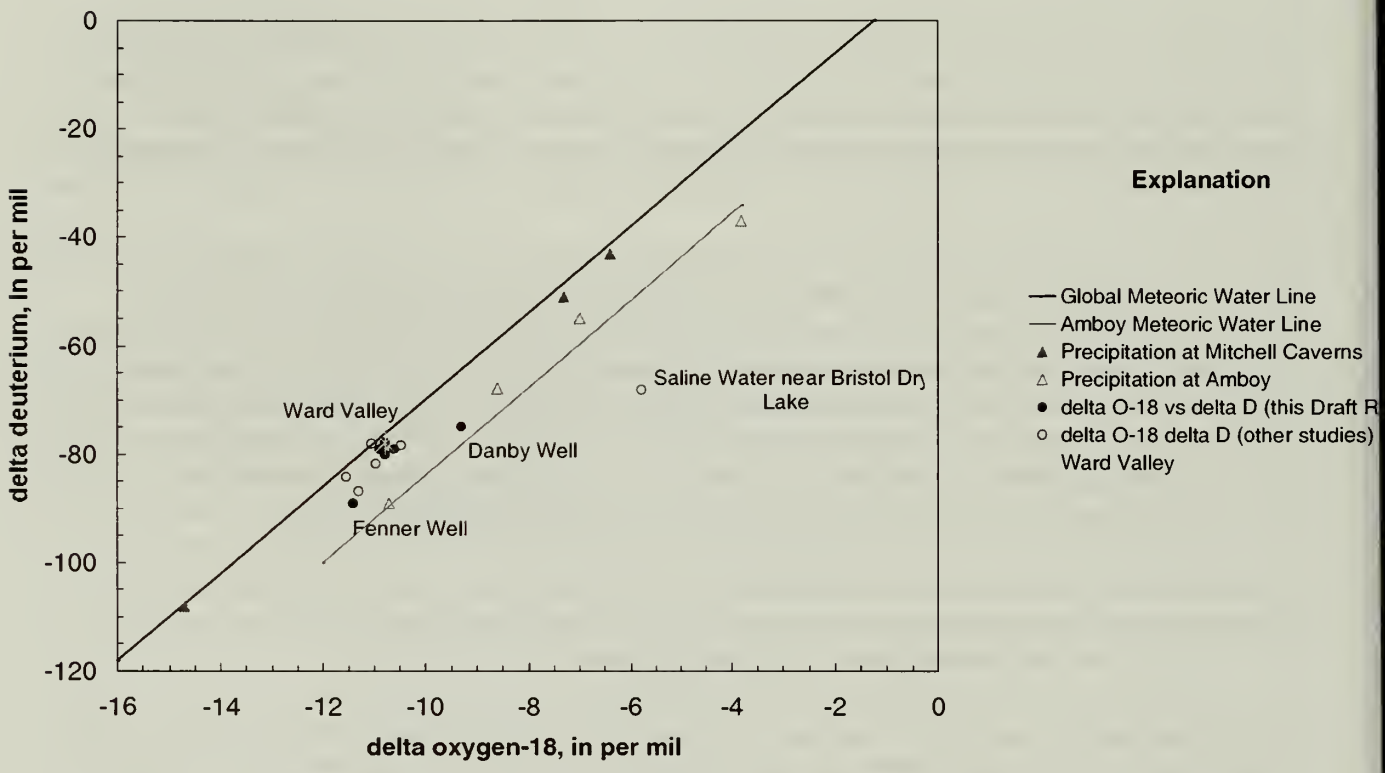


Figure 1.--Delta oxygen-18 and delta deuterium data from Fenner Valley and vicinity

Water from the Danby well (this Draft Report) plots below the meteoric water line along the local meteoric water line at Amboy. Its position along the Amboy meteoric water line suggests a locally derived origin for water from this well. This is consistent with the interpretation presented in the Draft Report and the ∂D and $\partial^{18}O$ composition of water from the Danby well is cited as evidence of infiltration from washes that drain Fenner Valley. However, if infiltration is occurring along the wash, why is there no isotopic or chemical evidence of water from this source in the Fenner Gap wells? Similarly, data from an upgradient well along the wash at Essex (LaMoreaux & Associates, 1995) show no evidence of infiltration from the wash. Friewald

(1984) described several wells in Danby were that drilled for the railroad between 1901 and 1927. One the basis of water-level data collected by Friewald (1984), the depth to water at this site is about 250 below land surface. At that time, at least one of these wells yielded water from above the regional water table and could not be representative of water from the regional aquifer. It is possible that the Danby well sampled as part of this Draft Report is old, its casing has failed, and water from the well is not representative of the aquifer. Izbicki (1998) estimates that several hundred years are required for water from washes to infiltrate through thick unsaturated zones and reach the water table. Tritium would not be expected in ground water at this site regardless of its source. A failed casing and leakage of surface water into the well also would explain the presence of tritium in water from the Danby well sampled as part of this Draft Report. The Danby well may not be representative of water from the aquifer. Because of the uncertainty of the validity of this sample, the data should not be used as evidence of infiltration from the wash and should not be considered as part of the interpretations in this Draft Report. Proper identification of the well, inspection of the well, and inspection of the integrity of its casing are required to verify or reject this sample.

The Draft Report claims that the natural variability in the isotopic composition of water in the Fenner Gap area is small and consistent with one large source of ground-water recharge. However, on the basis of the large variability in chemical quality of water from wells, this variability has not been adequately addressed with samples collected as part of the Draft Report. Water-chemistry data indicate large differences in the chemical quality of water even in the small area near the recharge site. These large differences in chemistry would not be expected near a large source of ground-water recharge. They are in fact consistent with water from a number of smaller sources converging at a single location. It is not clear from the Draft Report why wells with high dissolved-solids water were sampled only one time or why this water was not analyzed for stable isotope or carbon-14 activity.

As a group the data from wells that were sampled in Fenner Gap are isotopically similar to data collected at the Ward Valley (National Research Council, 1995) and near the proposed Bolo Landfill (LaMoreaux & Associates, 1995). The most negative (lightest) samples are from a well along the eastern edge of Fenner Valley, sampled by Gleason et al. (1984). This sample plots along the local meteoric water line at Amboy and, on the basis of its location, would not be expected to receive recharge from the higher altitudes in the Providence Mountains near Mitchell Caverns. Saline water from a well near Bristol dry lake plots farthest from the meteoric water line as a result of evaporation. These data give an estimate of variations in the natural isotopic composition of water from wells in the study area--additional data are required for further interpretation.

The similarity of the ∂D and $\partial^{18}O$ isotopic compositions of water from wells to present-day precipitation is interpreted in the Draft Report as evidence of recharge during present-day climatic conditions. Given the wide range and seasonality in the ∂D and $\partial^{18}O$ composition of present-day precipitation measured by Friedman et al. (1992), care must be used when interpreting changes in ∂D and $\partial^{18}O$ isotopic compositions of water in terms of paleoclimatic signals. Unlike many other areas of the world, in the western part of the Mojave Desert (Izbicki et al., 1995) and in parts of coastal California (Izbicki et al., 1992), correlations between carbon-14 ages and the ∂D and $\partial^{18}O$ isotopic composition of ground water do not show a large shift

toward more negative values (lighter) with increasing age. The reasons for this are unclear but may be related to the marine influence on climate and precipitation in southern California. Paleoclimatic studies have shown that, unlike most of the world, the temperature of the Pacific Ocean off the California coast during the Pleistocene (CLIMAP, 1976) was similar to present-day temperatures (Pisias, 1979).

Comments on the interpretation of tritium data--On the basis of data collected at Santa Maria and correlation with samples collected at Ottawa Canada (International Atomic Energy Agency, 1981), tritium in present-day precipitation in coastal California is expected to be about about 2 tritium units (TU) or about 6.4 picoCurries per liter (pCi/L) (Izbicki, 1992; Michel, 1989). Tritium in precipitation increases with increasing distance from the ocean; Michel (1989) estimated tritium concentrations in southern California to be about 3.3 TU in 1983. On the basis of samples of stormflow runoff collected at different sites in the Mojave Desert (U.S. Geological Survey, unpublished data), tritium in present-day precipitation in the Mojave Desert may be about 6 TU, slightly higher than Michel's estimate and slightly lower than the estimate in this Draft Report. Tritium in precipitation at Santa Maria reached a peak concentration of about 1,200 TU in 1962. Correcting for radioactive decay to the present time (about 3 half-lives) produces an estimate of about 150 TU. This is lower than the value reported in this Draft Report. The actual tritium concentrations in precipitation at the site probably are between the decay-corrected Santa Maria value and the value presented in the Draft Report. However, even after allowing for radioactive decay, tritium is readily measurable in environmental samples if the proper analytical techniques are used.

The tritium data for the Danby well (Stephens & Associates, 1992) has significant error associated with the measurement. The precision of the tritium analysis for this well is poor and the analytical techniques used were not intended for environmental studies of recharge processes. Analytical techniques that incorporate gas scintilation, electrolytic enrichment, or the recently developed helium-ingrowth procedures allow for detection limits of 0.2 TU or lower. The Draft Report interprets data from the Danby well as recently recharged water, and the ∂D and $\partial^{18}O$ isotope data suggest that the water is locally derived. Unfortunately, the well sampled is not identified by State well number. There are several old wells in the Danby area; water-level data (Friewald, 1984) suggest that at least some of the wells do not measure water representative of the aquifer. As previously discussed, Izbicki (1998) estimated that several hundred years are required for water from washes to infiltrate through thick unsaturated zones and reach the water table. Tritium would not be expected in ground water at the Danby well regardless of its source. Data from this well should not be considered as part of the interpretations in this Draft Report unless the sampled well is identified and the integrity of its casing verified.

Comments on the interpretation of carbon-14 data--Carbon-14 data from observation wells in Fenner Gap range from 18 to 25 percent modern carbon and have an apparent ages ranging from 11,500 to 14,000 years before present. In Appendix T, M. Lee Davisson suggests that water-rock reactions have occurred and that ground-water ages are younger than apparent ages indicate. However, he still believes that the ground-water age is early Holocene to late Pleistocene. The Draft Report dismissed the carbon-14 data and interpretations provided by M. Lee Davisson and suggested that carbon-14 data are not interpretable because reaction between ground water and

aquifer materials (primarily dissolution of carbonate minerals) during recharge and subsequent movement through the aquifer have altered the carbon-14 activity of the ground water.

In areas where the recharge rate is small and infiltrating water passes through a thick unsaturated zone prior to ground-water recharge, the Draft Report is correct in stating that carbon-14 activities are altered and may not be interpretable. However, in areas where large amounts of recharge occurs, the unsaturated zone is leached of chloride and other soluble salts, and carbonate minerals have not accumulated. The estimates of recharge presented in the Draft Report are large and, if correct, would leach soluble salts and, therefore, extensive accumulations of carbonate minerals would not be present in the unsaturated zone in these area. These conditions allow interpretation of rock-water reactions and their effect on carbon-14 activities.

On the basis of carbon-13 data provided as part of the Draft Report, reactions have occurred between ground water and aquifer materials. However, it is possible to interpret carbon-14 data and correct ground-water ages to account for the dissolution of carbon from aquifer materials that do not contain carbon-14. Numerous studies in the literature demonstrate corrections for rock-water interactions and the application of carbon-14 data to ground-water recharge studies. A complete interpretation of possible rock-water reactions and resulting corrections in carbon-14 data is beyond the scope of this review. However, an estimate of corrected carbon-14 ages for water from wells sampled in Fenner Gap can be made on the basis of data and rock-water reactions interpreted from other studies. Given the following,

1. Organic carbon typically has $\partial^{13}C$ compositions ranging from -21 to -28 per mil, depending on the source. Ground water in most desert aquifers contains dissolved oxygen. As a result, sulfate reduction and oxidation of organic material to bicarbonate cannot occur and contributions from organic material in the aquifer are limited.

2. Inorganic carbon in carbonate minerals present as caleche or as cement in desert aquifers typically has a $\partial^{13}C$ of about -4 per mil in areas where marine limestones are present the $\partial^{13}C$ of inorganic carbon may be as low as 0 per mil (Izbicki et al., 1995). For the purposes of calculations presented in this review, dissolution or isotopic exchange between ground water and carbonate minerals is the primary source of carbon that does not contain carbon-14 to ground water in desert aquifers. This assumption is consistent with the geochemical framework presented in the Draft Report.

3. Detailed sample collection and geochemical modeling studies done along flowpaths in the western part of the Mojave Desert show that the $\partial^{13}C$ composition of infiltrating water in active recharge areas is close to equilibrium with atmospheric $\partial^{13}C$ and has a value near -13 per mil (Izbicki et al.,, 1995) at the time of recharge. For the purposes of calculations presented in this review, the carbon-14 value of infiltrating water at the time of recharge is assumed to be 100 percent modern carbon. Carbon-14 activities in surface runoff and recently recharge water in the Mojave Desert is actually between 95 and 90 percent modern carbon (La Mareaux & Associates, 1995; Izbicki et al., 1995). Lower initial carbon-14 activities will result in older corrected ground-water ages.

Assuming a closed system and conservation of mass, a calculation can be made to estimate the fraction of the dissolved inorganic carbon dissolved from aquifer materials using the following equation:

$$C_m f_m = C_r f_r + C_w f_w$$

where: C_m is the measured $\partial^{13}C$ composition of the ground water. When using this approach, the fraction carbon measured in the ground water, f_m, is 1;
C_r is the $\partial^{13}C$ composition of the rock--assumed to be -4 per mil;
f_r is the fraction of the dissolved inorganic carbon from the rock;
C_w is the initial $\partial^{13}C$ composition of ground water at the time of recharge--assumed to be -13 per mil;
f_w is the fraction of the dissolved inorganic carbon from the recharge water. (To solve the equation f_w is written as $f_w = f_r - 1$).

Once the fraction of carbon from the aquifer materials is known, the corrected carbon-14 activity can be calculated using the following equation:

$$^{14}C_m = {}^{14}C_r f_r + {}^{14}C_w f_w$$

where: $^{14}C_m$ is the measured carbon-14 activity of the water. The fraction of carbon measured in the water is 1.
$^{14}C_r$ is the carbon-14 activity of the rock--assumed to be 0 because the rock has great age.
$^{14}C_w$ is the carbon-14 activity of the water corrected for mineralogical reactions. The fraction of the carbon-14 from the recharge water was calculated from the previous equation.

Results of these calculations are summarized in table 1.

Although subject to considerable discussion and additional interpretation if more data were available, the fraction of dissolved inorganic carbon from rock dissolution and corrected carbon-14 numbers are consistent with interpretations presented in the Draft Report by M. Lee Davisson of Lawrence Livermore National Laboratory. Corrected carbon-14 ages presented in table 1 also are consistent with corrected carbon-14 ages between 9,300 and 12,700 years before present estimated for the proposed Bolo Station Landfill Site (La Moreaux & Associates, 1995) in Cadiz Valley to the south of the study area and with corrected carbon-14 ages between 4,500 and 22,000 years before present estimated for Ward Valley east of the study area (National Research Council, 1995). Younger water, recharged 2,300 years before present, was sampled in parts of Cadiz Valley upgradient from the proposed landfill near the mountain front.

Mixing of younger ground water infiltrated from washes with older ground water also is cited as a source of error associated with carbon-14 measurements. In the Draft Report, the $\partial^{18}O$ and ∂D composition of water infiltrated from washes is believed to be characterized by samples from the Danby well. Water from this well has a unique ∂D and $\partial^{18}O$ isotopic composition and plots along the local meteoric water line for Amboy. If the Draft Report is correct in its interpretation,

∂D and $\partial^{18}O$ data suggest that water infiltrated from wash must be only a small component of the water sampled from wells at Fenner Gap. If a mixture is present, the Draft Report is correct in stating that carbon-14 measurements in water from wells represent an average age of the water; therefore, if even a small amount of comparatively young water from the wash infiltrated to the water table it would mix with ground water that would have to be even older than the corrected ages shown in table 1.

Summary--As a group isotopic data from this Draft Report and from studies in adjacent areas are consistent and show there is limited recharge under present-day climatic conditions and that ground water in desert basins was recharged thousands of years ago.

Table 1--Carbon-14 activities and ages for ground water from wells in the Fenner Gap.

Well number	Measured carbon-14 activity (pmc)	Measured carbon-13 (per mil)	Uncorrected Carbon-14 age (years before present)	Fraction DIC from rock (f_r)	Corrected carbon-14 activity (pmc)	Corrected carbon-14 age (years before present)
Assuming a carbon-13 composition of -4 per mil for rock dissolution						
CI-1	19	-7.8	13,600	0.58	45	5,500
CI-2	18	-8.4	14,000	0.51	37	8,300
CI-3	24	-9.4	11,900	0.40	40	7,600
MW-7	25	-10	11,500	0.33	38	8,100
Assuming a carbon-13 composition of 0 per mil for rock dissolution						
CI-1	19	-7.8	13,600	0.40	32	9,500
CI-2	18	-8.4	14,000	0.35	28	10,600
CI-3	24	-9.4	11,900	0.28	33	9,100
MW-7	25	-10	11,500	0.23	32	9,200

9.5 Infiltration

Page 139, 9.5.3, Groundwater Mounding. Was the ground-water model described in Section 8.0 used to simulate the water-level drawdown resulting from the pumping during the test and water-level mounding resulting from the recharge operation? The measured results of this test (figures 103 and 108) would provide excellent data to calibrate the ground-water flow model on a local scale. How were the drawdown and recharge mound figures constructed in such detail (figures 103-108)? The measured data from the wells are too sparse to construct the figures. The symmetry of the drawdown and mounding could be useful for identifying changes in lithology and potential barriers to flow. As postulated in the Draft Report and in this review, a northwest-southeast trending fault lies almost directly beneath the recharge ponds. Since the production well is perforated in the upper and lower aquifers, and the extent of the lower aquifer is limited by the fault to the northeast, one would expect to see a barrier affect in the measured

drawdown. Unfortunately, there are no wells perforated opposite the lower aquifer between the production well and the recharge ponds. A better monitoring network would be needed to define the drawdown and mounding. Microgravity would be a good technique to apply to fill in the gaps during a follow-up recharge activity. The calibrated model could then be used with more confidence, then the poorly calibrated regional model, to help manage the large-scale recharge operation. In addition, a two-dimensional unsaturated zone model could be calibrated with the measured data, to provide information on the unsaturated zone properties.

Page 140, 9.5.4, Water Quality Changes (Includes comments for 9.5.4.1 and 9.5.4.2). Water-quality changes observed in monitoring wells after water infiltrated through the thick unsaturated zone beneath the recharge basins are consistent with leaching of chloride and other soluble salts from the unsaturated zone. As described in previous comments from Section 6.7, accumulation of chloride and other soluble salts is consistent with the lack of recharge in desert basins. The relatively high chloride concentrations measured in observation wells suggest that the salt accumulation was large and that the length of time since recharge has occurred at that site must be long.

The Draft Report does not discuss what happens with this high TDS water. Was the solute-transport model described in Section 8 used to simulate the movement of this TDS plume? It is interesting to note that the TDS contours do not agree with the water-level contours. What are the implications of this high TDS water for the large-scale operation? What will be done with this high TDS during the pump-back operation? Wells CI-3 and MW-2 should have been sampled to determine the transport of the TDS plume.

9.9 Analysis of Project Impacts Using the Groundwater Model

Page 148, 9.9.1, Project Area Water Level Changes. As described in great detail in the review of the model in Section 8.0, the model does not accurately simulate current water levels. Water levels are too high in Area A and too low near the dry lakes. The simulated gradient through the Fenner Gap is higher than the gradient measured in the gap, even using unreasonably high hydraulic conductivity values (in excess on 1,000 gpd/ft^2). Too much recharge is being simulated in the model; therefore, the gradient is too high and an unreasonable evapotranspiration rate is being simulated in the model. The simulation of soil evaporation from the dry lakes using a 100-foot extinction depth is unreasonable. The model needs to be recalibrated before it can be used to predict water-level changes resulting from the planned recharge/pumpage operation.

Water-level contours and drawdown contours need to be presented for each scenario. These contours are needed to show the areal extent of mounding during recharge operations and drawdown during the pumping operation. In addition to simulating scenarios 5 and 6, please make two long-term simulations considering the recovery of the aquifers after the 50-year put/take operations cease. The length of these simulations should be long enough such that there is little change in head between subsequent stress periods. Note that steady-state simulations will not suffice because density-dependent flow and transport takes many years to equilibrate. These simulations are needed to show the long-term affects of the recharge and pumping

operations. If more water is withdrawn than is recharged, it will take many years for the drawdown cone to stabilize, especially if realistic recharge rates are simulated in the model.

Page 148, 9.9.2, Groundwater Supply to Bristol and Cadiz Dry Lakes. Results of the watershed model, chloride mass balance studies, isotopic data, and water balance (evaporation at the dry lakes) presented in the Draft Report greatly overestimate natural ground-water recharge. Data presented in the Draft Report and all previous studies done in the area are consistent with small amounts of recharge to desert basins. The 1,150,000 acre-feet of ground water projected as discharge to Bristol dry lake, under existingl conditions, over a 50-year period is not correct. The actual number is much smaller. Such a large error in such an important component of the model almost certainly invalidates the flow and solute model results and predictions.

As a check on the simulated underflow through Fenner Gap, a simple Darcy's Law calculation was completed using the data presented in the Draft Report. Friewald (1984) and P.E. La Moreaux & Associates (1995) performed similar calculations. Darcy's Law states that Q = KIA where Q is equal to the rate of underflow; K is equal to the hydraulic conductivity, and A is equal to the cross-sectional area. The gradient (I) was determined by measuring the water-level distance between wells MW-7 and MW-1 (612.72-602.47=10.25 feet) and dividing by the measured distance between the wells (5,950 feet; measured on plate 3 of the Draft Report). The resulting gradient is 0.0017 feet per feet. The cross-sectional area was measured along the cross-section D-D' on plate 3. Two areas were measured: the first area (A1) is the area of the saturated unconsolidated deposits from the water table to 100 feet below the water table, and the second area (A2) is the area of the saturated unconsolidated deposits from 100 feet below the water table to the contact with the underlying bedrock. This was done because inspection of the geophysical and lithologic logs indicated that there was a change in the hydraulic properties of the unconsolidated deposits at about 100 feet below the water table. The resulting areas were approximately 486,000 ft^2 for A1 and 3,300,000 ft^2 for A2. If we assume the hydraulic conductivity values estimated for the upper and lower alluvial aquifers, presented earlier in this review (see review comments for Section 8.1.4.4), are representative of the two aquifers (800 gpd/ft^2 for the upper aquifer and 300 gpd/ft^2 for the lower aquifer), we can estimate the underflow through the Fenner Gap. Note that these hydraulic conductivity values were estimated from well PW-1 that is downgradient of a postulated fault, and this well penetrates deposits that are not present in the gap. The calculated underflows are about 740 acre-ft/yr and 1,887 acre-ft/yr for A1 and A2, respectively. Therefore, the combined estimated underflow through the Fenner Gap is about 2,627 acre-feet per year. If one assumes that the hydraulic conductivity estimated from the specific capacity data of well PW-1 is representative for the entire cross sectional area (600 gpd/ft^2; see review comments for Section 8.1.4.4), then the total estimated underflow would be about 4,330 acre-feet per year. These estimates are higher than the 270 acre-feet per year estimated by Friewald (1984) lower or slightly higher than the 3,720 acre-feet per year estimated by P.E La Moreaux & Associates (1995), and significantly less than the 30,0000 acre-feet per year estimated in the Draft Report. The Draft Report must reevaluate the recharge and hydraulic conductivity estimates used in the ground-water flow model.

Regardless of the recharge value, if the project pumps more water than is recharged, there will be less ground-water discharge at the dry lakes. Over the long term, this will cause water levels beneath the dry lakes to decline. A density-dependent solute-transport model is needed to

evaluate the long-term impacts of the project on the brine levels. The Draft Report does not address how water-level declines will impact the dry lakes. With a decrease in ground-water discharge, will the mining operation at the dry lakes be impacted? Will lower water levels cause the upper sediments to dry out and result in a dust problem? As stated previously in this review, the failure of the model to simulate the water levels beneath the playas invalidates the models ability to predict any impacts resulting from the recharge/pumping operation on water levels and solute transport beneath the playas. With less recharge in the model, water-level declines resulting from the pumping phase of the project will be greater, which will undoubtedly cause the high salinity water to move from the Bristol dry lake area towards the pumping wells if there is not a ground-water barrier between the well field and Bristol dry lake.

Page 150, 9.10, Subsidence and Hydrocompaction. As stated previously in the review, the water-level changes predicted by the ground-water model are based on an incorrectly calibrated model; therefore, the predicted subsidence values will also be in error.

Page 151, 9.11, Project Spreading Basins. The entire project should be reevaluated after recalibrating the ground-water flow and solute-transport models.

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Attachment

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USGS Preliminary Recharge Estimates for the Fenner, Bristol, and Cadiz Watersheds

The U.S. Geological Survey, as part of this review, estimated the recharge to the Fenner, Bristol, and Cadiz watersheds using a modified Maxey-Eakin (1949) model. The modified model is based on a continuous exponential curve fitted to the original Maxey-Eakin step function, which is used to estimate recharge as a percentage of average annual precipitation within discrete elevation-precipitation-recharge zones (Hevesi and Flint, 1998, Hevesi and Flint, in press). The modified Maxey-Eakin model was used in this review to provide a preliminary evaluation of the Cadiz project recharge estimates on the basis of an established approach of estimating recharge for basins in the southern Great Basin and the Mojave Desert regions.

Background

The watershed model recharge estimates presented in the Draft Report were compared with preliminary estimates obtained using a well-established and tested empirical method of estimating basinwide recharge in the southern Great Basin and the Mojave Desert regions. The method is based on basin-scale water-balance studies conducted by Maxey and Eakin (1949) throughout the central and southern Great Basin in Nevada. The studies indicated that a simple linear model for five elevation – precipitation – recharge zones could be used to estimate recharge. The linear model is a step function, which provides recharge estimates as a constant percentage of average annual precipitation within each of the five discrete zones. The percentage increases from a minimum of 3% for zone 1, with precipitation rates ranging from 203 to 305 millimeters per year (8 to 12 inches per year), to a maximum of 25% for zone 5 with precipitation rates of 508 millimeters per year (20 inches per year and greater). For precipitation rates less than 203 millimeters per year, recharge is estimated to be 0 by the Maxey-Eakin method. Dettinger (1989) indicated that the Maxey-Eakin model provided reasonable results on the basis of chloride-balance estimates of recharge for desert basins in Nevada. Rush (1970) applied the Maxey-Eakin method to estimate recharge for various basins throughout the Nevada Test Site in south-central Nevada, located in the transitional zone between the Great Basin and Mojave Desert regions. Results presented by Osterkamp and others (1994) using a combined watershed and channel-loss modeling approach provide a good basinwide comparison with Maxey-Eakin estimates for the Upper Amargosa River watershed. A three-dimensional regional ground-water flow model of the Death Valley ground-water basin indicated that spatially distributed recharge estimates using a modified Maxey Eakin model provided reasonable results on the basis of simulation results which were calibrated against regional discharge estimates, known ground water withdrawals, and measured water-table elevations (D'Agnese and others, 1997).

Hevesi and Flint (1998, in press) developed a modified Maxey-Eakin model on the basis of recharge estimates obtained from various studies in the central and southern Nevada region (Lichty and McKinley, 1995; Osterkamp and others, 1994; Winograd, 1981; Flint

and Flint, 1994) (figure 1). The modified Maxey-Eakin model is applied to develop spatially distributed estimates of recharge using spatially distributed estimates of average annual precipitation. The average annual precipitation estimates are developed using available precipitation records from a network of regional monitoring sites and available digital elevation models (Hevesi and Flint, in press; Hevesi, Flint, and Istok, 1992; Hevesi, Istok, and Flint, 1992). The modified Maxey-Eakin model provides a continuous exponential curve for estimating recharge as a function of average annual precipitation and was developed on the basis of more recent studies, which indicate low recharge and net infiltration[1] rates for locations in the Great Basin with less than 203 millimeters per year precipitation (Nichols, 1987; Kwicklis, 1999; Flint and Flint, 1994, 1995) and recharge rates as high as approximately 50% of average annual precipitation for higher elevations with precipitation rates as high as 639 millimeters per year (25 inches per year) (Lichty and McKinley, 1995). Studies conducted by Nichols (1987) for a site in the northern Amargosa Desert and by Flint and Flint (1995) indicate negligible (less than 0.1 millimeter per year) recharge rates for inter-channel areas in thick alluvium. Studies conducted by Lichty and Mckinley (1995), using both the chloride balance and watershed modeling methods, indicate recharge rates of 11 to 33 millimeters per year (0.4 to 1.3 inches per year) for a small upland basin in the Kawich range of south-central Nevada, at elevations of 2,190 to 2,870 meters (7,185 to 9,416 feet). Lichty and McKinley measured an average precipitation rate of 336 millimeters per year (13.2 inches per year) for this study site during a six year study period. Results obtained by Lichty and McKinley for a higher elevation basin at 2,985 to 3,292 meters (9,498 to 10,801 feet) in the Toiyabe Range of central Nevada, with an average precipitation rate of 639 millimeters per year (25 inches per year), indicate much higher recharge rates of approximately 300 to 320 millimeters per year (11.8 to 12.6 inches per year). In the development and calibration of a regional ground water flow model for the Death Valley ground water basin, D'Agnese and others (1997) estimated that the percentage of precipitation occurring as recharge for zone 5 (average precipitation rates of 508 millimeters/year and higher) of the original Maxey-Eakin model is likely to be closer 30%, rather than 25% as indicated by Maxey and Eakin (1949). In general, the modified Maxey-Eakin model developed by Hevesi and Flint (1998, in press) provides higher estimates of basinwide recharge compared to the original Maxey-Eakin model, and is consistent with the recent studies indicating that recharge is likely to be higher on-average than 25% of the average precipitation rate for the wetter, higher elevation locations that apply to zone 5 (figure 1).

Development of the Maxey-Eakin Method for the Fenner, Bristol, and Cadiz Watersheds

To evaluate estimated recharge volumes provided in the Draft Report, the modified Maxey-Eakin method was applied to obtain preliminary estimates of spatially distributed recharge for the Fenner, Bristol, and Cadiz watersheds (figures 2 and 3). Precipitation was estimated using an available 30-meter digital elevation model for the area of the watersheds (figure 4) and two empirical elevation – precipitation correlation models

[1]Net infiltration is defined by Flint and Flint (1994) as the rate of water percolation below the zone of seasonal evapotranspiration, and represents a potential recharge rate through thick (> 100 meters) unsaturated zones.

(model 1 and model 2) (figure 5). Model 1 was developed by Hevesi and Flint (1998, in press) for the Death Valley region using a network of 114 precipitation stations for an area including most of the southern Great Basin and Mojave Desert regions. The model is a fitted regression curve and is similar to other empirical models representing the observed precipitation-elevation correlation in the southern Nevada and southeastern California region (French, 1983, 1986). Spatially distributed recharge estimates obtained using model 1 precipitation estimates and the modified Maxey-Eakin model for the Death Valley region were considered to be generally consistent with estimates of ground-water discharge and measured water-table elevations on the basis of the calibration of a three-dimensional ground water flow model which incorporates estimates of regional discharge, recharge, and a three-dimensional geologic framework model to match simulated with measured water-table elevations (D'Agnese and others, 1997).

A second model (model 2) was developed specifically for the review of the Draft Report by visually fitting a curve through the elevation-precipitation data from four stations (Mitchell Caverns, Amboy, Iron Mountain, and Twentynine Palms) in or adjacent to the three watersheds in the Cadiz study area (figure 5). The model provides an imposed extrapolation which estimates unrealistically high (relative to precipitation monitoring sites throughout the southern Great Basin and Mojave Desert regions) values of precipitation for elevations of 1,500 meters (4,921 feet) and higher. The estimates obtained using this model are considered to be unreasonably high on the basis of the observed orographic influences on precipitation in the Mojave Desert region. In addition, the average annual precipitation rate of 255 millimeters per year (10 inches per year) obtained using 37 complete years of daily precipitation records for the Mitchell Caverns site at an elevation of 1,326 meters (4,350 feet) is higher than the average annual precipitation rate obtained at other nearby locations in the Mojave Desert region with comparable elevations. For example, the elevation of the Mountain Pass site is 1,442 meters (4,730 feet), while average annual precipitation (based on 30 complete years of daily precipitation records) at this site is only 213 millimeters per year (8.4 inches per year).

Model 1-- Recharge estimates for the Fenner, Bristol, and Cadiz Watersheds

Figure 6 shows the spatial distribution of the preliminary USGS estimates of average annual precipitation using model 1 for the Fenner, Bristol, and Cadiz watersheds. Figure 7 shows the spatial distribution of the preliminary USGS estimates of average annual recharge for the watersheds obtained using the modified Maxey-Eakin model and the estimated average annual precipitation map. The spatial distribution of recharge rates as high as 10 to 20 millimeters per year for the higher elevation locations of the New York Mountains and the Providence Range within the Cadiz Project study area are considered reasonable in comparison to recharge estimates obtained throughout the Mojave Desert region in southeastern California and southern Nevada. For example, recharge has been estimated to be approximately 20 millimeters per year (0.79 inch per year) at elevations of approximately 2,200 meters (7,218 feet) in the northern part of the Nevada Test Site based on measurements of seepage in underground tunnels. The recharge rates of 10 to

20 millimeters per year (0.39 to 0.79 inch per year) also compare well with the recharge estimate of 13 to 33 millimeters per year obtained by Lichty and McKinley (1995) for the Kawich Range study basin at elevations of 2,190 to 2,870 meters (7,185 to 9,416 feet) in south-central Nevada. The spatial distribution of recharge obtained by model 1 is generally consistent with the watershed model results presented in the Draft Report indicating that most recharge occurs for soil type D which corresponds to the shallow soil areas of the more rugged upland locations in the Providence and New York Mountains (Figure 8).

Model 1-- Recharge estimates for the expanded study area

Preliminary recharge estimates were also obtained for an expanded study area including parts of basins adjacent to Fenner, Bristol, and Cadiz watersheds (figure 9). Although the assumption that surface-water and ground-water divides are equivalent is reasonable, a possibility exists that interbasin transfer of ground water through carbonate aquifers (or some other permeable structure or unit) provides inflow to the Cadiz Project watersheds. The total area contributed to ground-water recharge for the Cadiz project as represented by the expanded study area is considered to be highly unlikely as a true contributing area, especially since much of the area included in the northeastern part of the expanded area drains toward Ivanpah and Soda Lakes (dry). The intent of developing recharge estimates for the expanded area is to provide a comparison with the estimated recharge volumes presented in the Draft Report. The total estimated recharge volume for the expanded area is assumed to be greater than the actual recharge volumes available for the Cadiz project. The spatial distribution of the model 1 preliminary precipitation estimates for the expanded study area is provided in figure 10, and the recharge estimates for the expanded area is provided in figure 11. These results were considered reasonable in comparison to recharge studies conducted throughout the southern Great Basin.

Model 2--Recharge estimates for the Fenner, Bristol, and Cadiz Watersheds

Figure 12 shows the spatial distribution of the preliminary estimates of average annual precipitation using model 2 for the Fenner, Bristol, and Cadiz watersheds. Although this model provided a better fit to the precipitation records for the four Cadiz area precipitation stations, precipitation estimates of as high as 517 to 625 millimeters per year (2.3 to 24.6 inches per year) were obtained for elevations of approximately 1,800 meters (5,906 feet) and higher in the Providence and New York Mountains. These estimates are considered to be too high on the basis of a comparison with locations having similar amounts of precipitation but which are at much higher elevations, such as South Lake at an elevation of 2,920 meters (9,580 feet) in the southeastern Sierra Nevada and Lee Canyon at an elevation of approximately 2,800 meters (9,187 feet) in the Spring Mountains of southern Nevada. Model 2 recharge estimates are as high as 100 millimeters per year (3.9 inches per year) in the New York Mountains (figure 13), which is considered to be unreasonably high for this location on the basis of a comparison with estimated recharge rates of approximately 20 millimeters per year (0.79 inches per year)

obtained for similar elevations on the Nevada Test Site and with recharge estimates of approximately 11 to 33 millimeters per year obtained by Lichty and McKinley (1995). It is unlikely that recharge rates in the Mojave Desert would be greater then recharge rates obtained for locations in the southern Great Basin Desert because potential evapotranspiration rates in the Mojave are higher because of higher air temperatures. In addition, the average permeability of the dominantly volcanic, sedimentary, and low grade metamorphic consolidated rock types for the Nevada Test Site and the Kawich Range study locations is likely to be higher than the average permeability of the dominantly granitic and metamorphic consolidated rock types for the watershed area.

Model 2-- Recharge estimates for the expanded study area

The model 2 preliminary precipitation estimates for the expanded region included maximum precipitation estimates of 500 to 750 millimeters per year (19.7 to 29.5 inches per year) for the higher elevations areas of the New York Mountains and the Clark Mountain Range (north of the Mountain Pass precipitation station), as indicated in figure 14. These estimates are considered to be unreasonably high on the basis of the characteristics of the vegetation found at these two locations. Locations with measured precipitation rates of approximately 450 to 500 millimeters per year (17.7 to 19.7 inches per year), including South Lake and Lake Sabrina along the southeastern Sierra Nevada and Lee Canyon in the Spring Mountains, are characterized by relatively dense coniferous forests. Juniper and Pinion Pine associations found at the higher elevations in the New York and Clark Mountain Ranges are more typical of precipitation rates of approximately 250 to 350 millimeters per year (9.8 to 13.8 inches per year). The model 2 estimates (figure 15) indicate recharge rates as high as 100 to 375 millimeters per year (3.9 to 14.8 inches per year) for these higher-elevation locations. In general, these recharge rates require relatively wet conditions and this is not consistent with the characteristics of the vegetation at these locations.

Comparison of Maxey-Eakin recharge results with recharge estimates obtained from the Draft Report

Table 1 provides a comparison of precipitation and recharge estimates obtained by the Draft Report with the preliminary estimates obtained using the modified Maxey-Eakin model 1. Table 2 provides a comparison of precipitation and recharge estimates obtained by the Draft Report with the preliminary estimates obtained using the modified Maxey-Eakin model 2. The preliminary estimates of average annual precipitation obtained using model 1 compare well with the estimates of basin precipitation provided by the Draft Report. Although the minimum precipitation rate of 96 millimeters per year (3.8 inches per year) estimated using model 1 is somewhat higher than the estimate of 76 millimeters per year (3.0 inches per year) obtained from the Draft Report, the model 1 basinwide average precipitation rate of 128 millimeters per year (5.0 inches per year) compares well with the average rate of 127 millimeters per year obtained from the Draft Report, and the model 1 maximum estimate of 301millimeters per year (11.8 inches per year) also compares well with the maximum of 305 millimeters per year (12.0 inches per year)

provided in the Draft Report. Precipitation estimates for the expanded study region were on average higher than for the Fenner, Bristol, and Cadiz watershed area as indicated by the basin-wide average of 205 millimeters per year (8.1 inches per year) for the expanded region. Precipitation estimates obtained using model 2 were on average higher than the basinwide averages obtained from the Draft Report (table 2). The higher precipitation rates of 517 to 734 millimeters per year obtained for elevations greater than approximately 1,800 meters (5,906 feet) are considered unreasonable (excessively high) based on a comparison with records from equivalent elevations in the southern Basin and Range. Even with these unacceptably high precipitation rates, the recharge estimates obtained using model 2 were approximately 2.5 times lower than those obtained in the Draft Report for Fenner watershed (10,343 acre-feet per year predicted using model 2 versus 25,950 acre-feet per year predicted in the Draft Report), and approximately 3.3 times lower for the total area of the three watersheds (11,807 acre-feet per year versus 39,077 acre-feet per year). The estimated model 2 recharge volume of 50,643 acre-feet/year for the expanded area is only 1.3 times greater than the estimated recharge volume presented in the Draft Report for the three watersheds. This result indicates that the recharge estimates presented in the Draft Report requires a combination of unrealistically high estimates of precipitation and recharge in the New York, Providence, and Clark Mountains, and the highly unlikely scenario of an interbasin transfer of all recharge from the Mountain Pass area (including the Ivanpah and eastern Mojave watersheds) into the Fenner, Bristol, and Cadiz watersheds. This represents an approximate doubling of the total area contributing to recharge relative to the area defined by the surface water basin for the Fenner, Bristol, and Cadiz watersheds.

Table 1. Comparison of Precipitation and Recharge Estimates Presented in the Draft Report and Predicted by the Preliminary Maxey-Eakin Model 1 (Na = not available)

	Cadiz Report				USGS Preliminary Estimates: Model 1				
	Fenner	Bristol	Cadiz	Total	Fenner	Bristol	Cadiz	Total	Expanded Area
Watershed Area (square miles)	1,000[d]	1,170[d]	540[d]	2,710	1,100[e]	1,172[e]	581[e]	2,852	5,830
Average Precip. Rate (millimeters/year) (inches/year)	Na	Na	Na	127 5.0	147 5.8	119 4.7	111 4.4	128 5.0	205 8.1
Max. Precip Rate (millimeters/year) (inches/year)	Na	Na	Na	305 12.0	301 11.8	271 10.7	210 8.3	301 11.8	328 12.9
Min. Precip. Rate (millimeters/year) (inches/year)	Na	Na	Na	76 3.0	103 4.0	97 3.8	96 3.8	96 3.8	96 3.8
Average Recharge Volume[a] (acre-feet/year)	25,950	2,789[b]	10,338[c]	39,077	2,070	363	114	2,547	10,837
Average Recharge Rate[f] (millimeters/year) (inches/year)	12.36 0.49	1.13 0.045	9.12 0.36	6.87 0.27	0.90 0.035	0.15 0.006	0.09 0.0035	0.43 0.017	0.89 0.035
Max. Recharge Rate (millimeters/year) (inches/year)	Na	Na	Na	Na	20.0 0.79	13.3 0.52	4.3 0.17	20.0 0.79	27.8 1.09
Min. Recharge Rate (millimeters/year) (inches/year)	Na	Na	Na	Na	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00

a—median values for the Cadiz reported values from table 16 in the Draft Report
b—median value for Orange Blossom Wash
c—median value for watershed excluding Fenner and Orange Blossom Wash
d—watershed areas provided in Draft Report
e—watershed areas calculated using digitized watershed boundaries
f—average recharge rates calculated using watershed areas

Table 2. Comparison of Precipitation and Recharge Estimates Presented in the Draft Report and Predicted by the Preliminary Maxey-Eakin Model 2 (Na = not available)

	Cadiz Report				USGS Preliminary Estimates: Model 2				
	Fenner	Bristol	Cadiz	Total	Fenner	Bristol	Cadiz	Total	Expanded Area
Watershed Area (square miles)	1,000[d]	1,170[d]	540[d]	2,710	1,100[e]	1,172[e]	581[e]	2,852	5,830
Average Precip. Rate (millimeters/year) (inches/year)	Na	Na	Na	127 5.0	174 6.8	117 4.6	104 4.1	137 5.4	228 9.0
Max. Precip Rate (millimeters/year) (inches/year)	Na	Na	Na	305 12.0	625 24.6	517 20.3	325 12.8	625 24.6	734 28.9
Min. Precip. Rate (millimeters/year) (inches/year)	Na	Na	Na	76 3.0	89 3.5	78 3.1	78 3.1	78 3.1	78 3.1
Average Recharge Volume[a] (acre-feet/year)	25,950	2,789[b]	10,338[c]	39,077	10,343	1,102	362	11,807	50,643
Average Recharge Rate[f] (millimeters/year) (inches/year)	12.36 0.49	1.13 0.045	9.12 0.36	6.87 0.27	4.48 0.18	0.45 0.018	0.30 0.012	1.97 0.077	4.14 0.16
Max. Recharge Rate (millimeters/year) (inches/year)	Na	Na	Na	Na	232 9.1	129 5.1	27 1.1	232 9.1	375 14.8
Min. Recharge Rate (millimeters/year) (inches/year)	Na	Na	Na	Na	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00

a—median values for the Cadiz reported values from table 16 in the Draft Report
b—median value for Orange Blossom Wash
c—median value for watershed excluding Fenner and Orange Blossom Wash
d—watershed areas provided in Draft Report
e—watershed areas calculated using digitized watershed boundaries
f—average recharge rates calculated using watershed areas

Conclusions

Recharge estimates obtained using model 1 provided reasonable estimates of spatially distributed recharge on the basis of a comparison of recharge estimates obtained for various locations throughout the southern Nevada and south-central Great Basin regions. The model 1 recharge estimates were more than 1 order of magnitude less than the recharge estimated by the watershed model presented in the Draft Report for the Cadiz study region. The estimated median recharge of 25,950 acre-feet per year for the Fenner watershed presented in the Draft Report is 12.5 times greater than the model 1 estimate of 2,070 acre-feet per year for the Fenner watershed. For the Cadiz watershed, the estimated median recharge of 10,338 acre-feet per year presented in the Draft Report is 91 times higher than the model 1 recharge estimate of 114 acre-feet per year. The estimated median recharge value of 39,077 acre-feet per year presented in the Draft Report for the total area of the Fenner, Bristol, and Cadiz watersheds is 15.3 times greater than the model 1 estimate of 2,547 acre-feet per year. The Model 2 estimates of maximum precipitation rates are as high as 517 to 734 millimeters per year (which are unjustifiably high), yet the total basin recharge of 11,807 acre-feet per year is still 3.3 times less than the estimated median total basin recharge estimated by the watershed model presented in the Draft Report. This indicates that the modified Maxey-Eakin model cannot provide recharge estimates that are comparable with the results provided in the Draft Report, even when uncertainty in precipitation estimates are accounted for by assuming unreasonably high precipitation rates for the higher elevations. In summary, the median recharge rates estimated by the watershed model presented in the Draft Report are an order of magnitude higher than recharge estimated using a modified Maxey-Eakin model and the model 1 precipitation estimates that were found to be more consistent with measured precipitation rates in the Mojave Desert region.

References:

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FIGURE 1—MAXEY-EAKIN MODEL AND RECHARGE ESTIMATES IN THE GREAT BASIN AND MOJAVE DESERTS

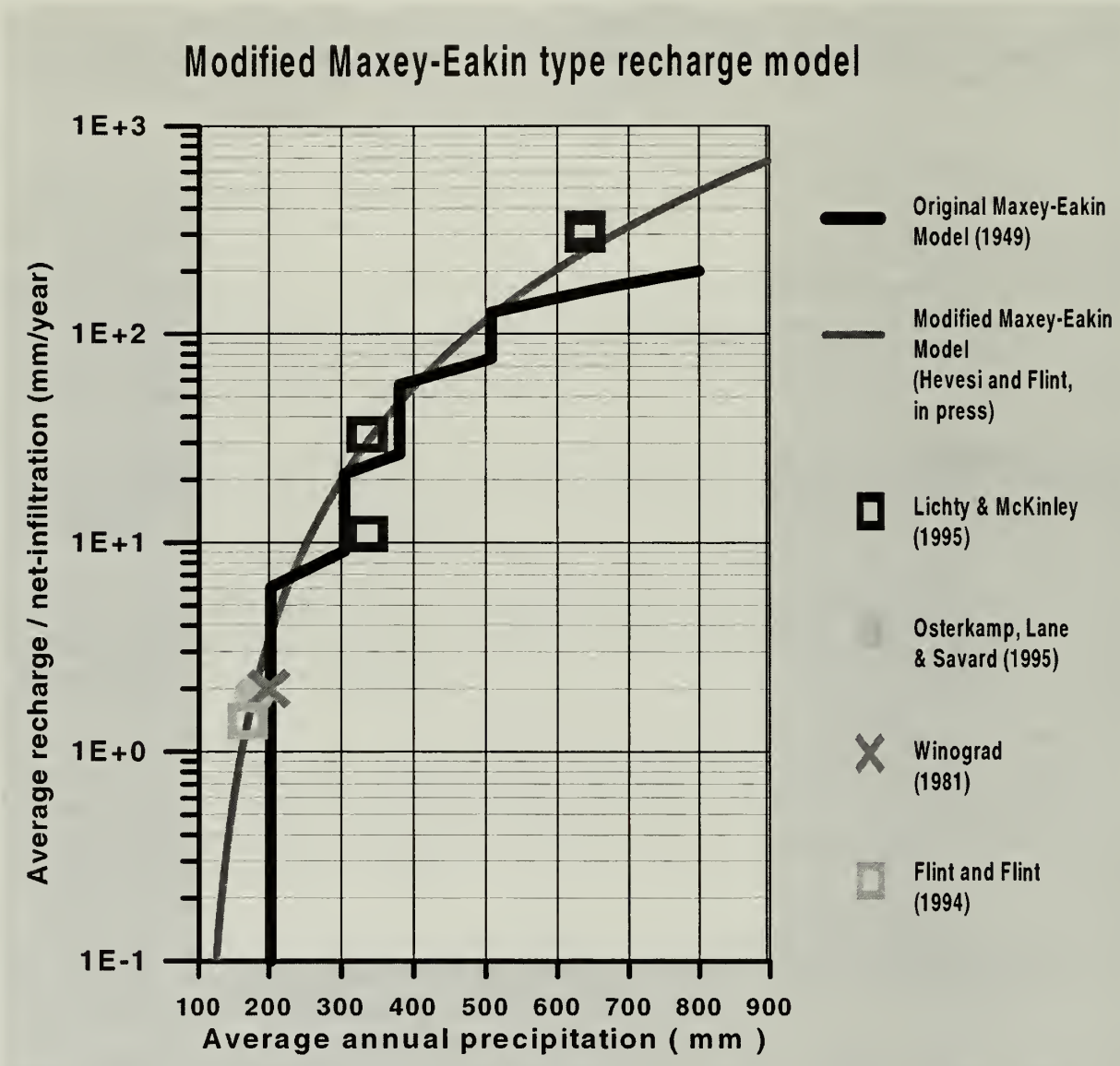




FIGURE 2--PROJECT STUDY AREA

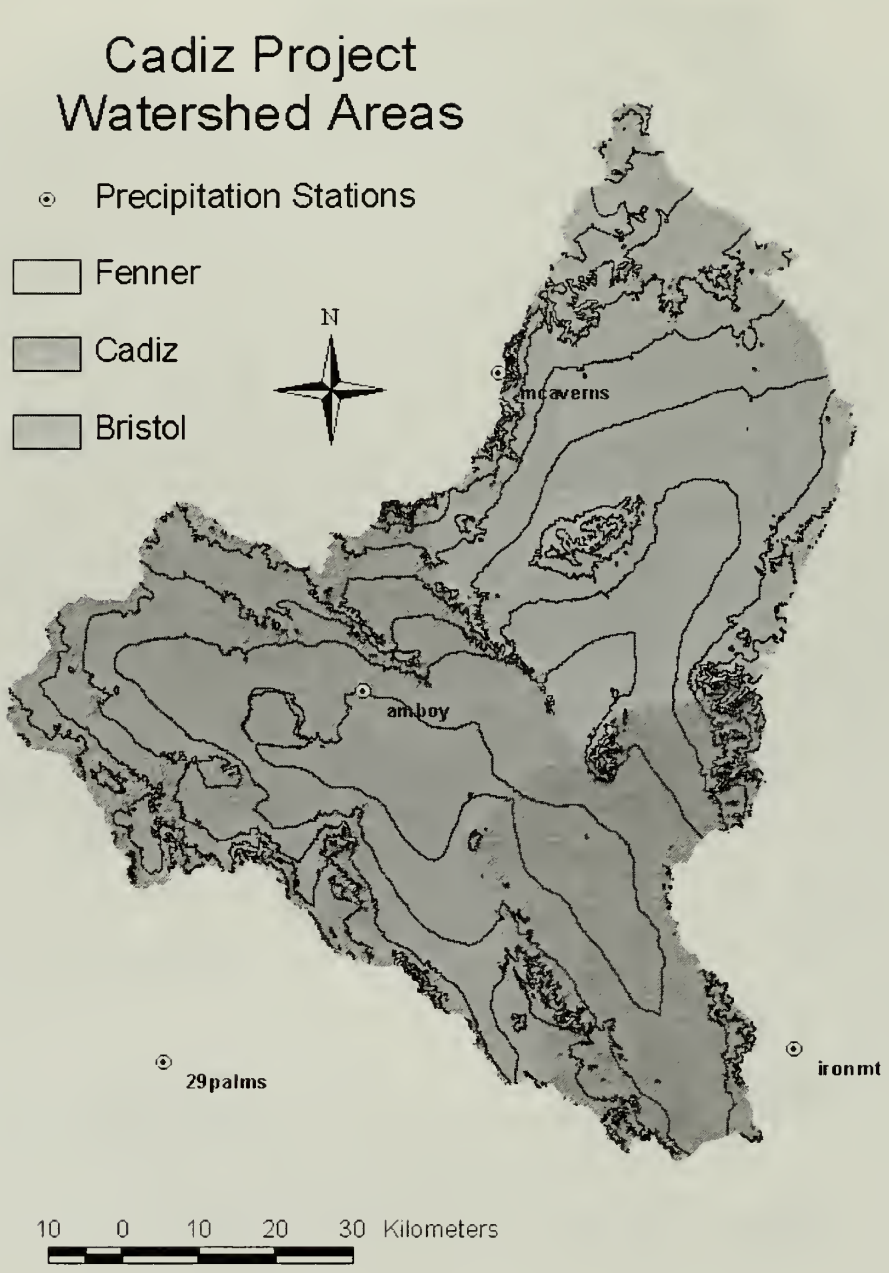


FIGURE 3--WATERSHED AREAS FOR THE FENNER, CADIZ, AND BRISTOL SURFACE WATER BASINS DEFINING THE DRAFT REPORT STUDY AREA

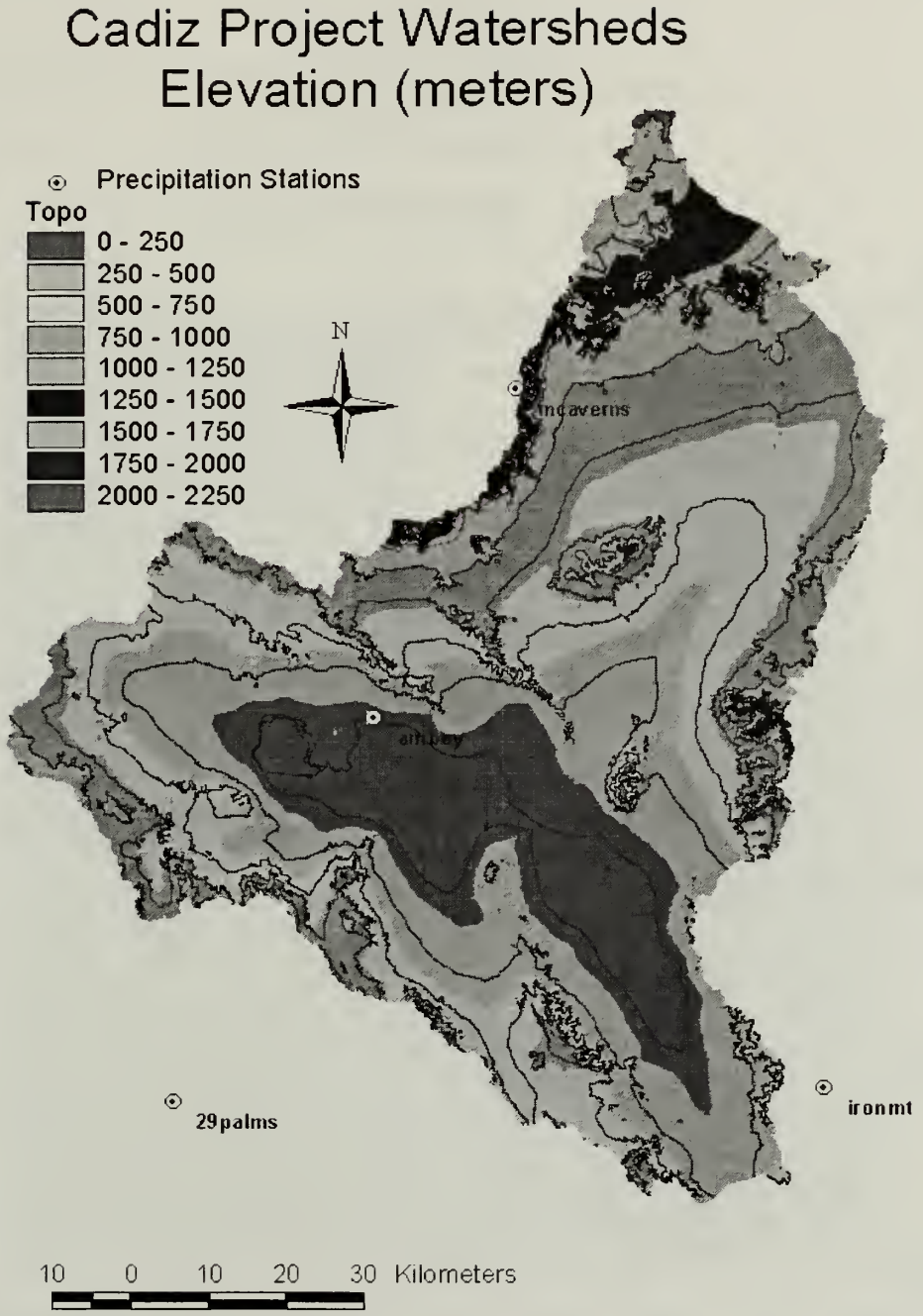
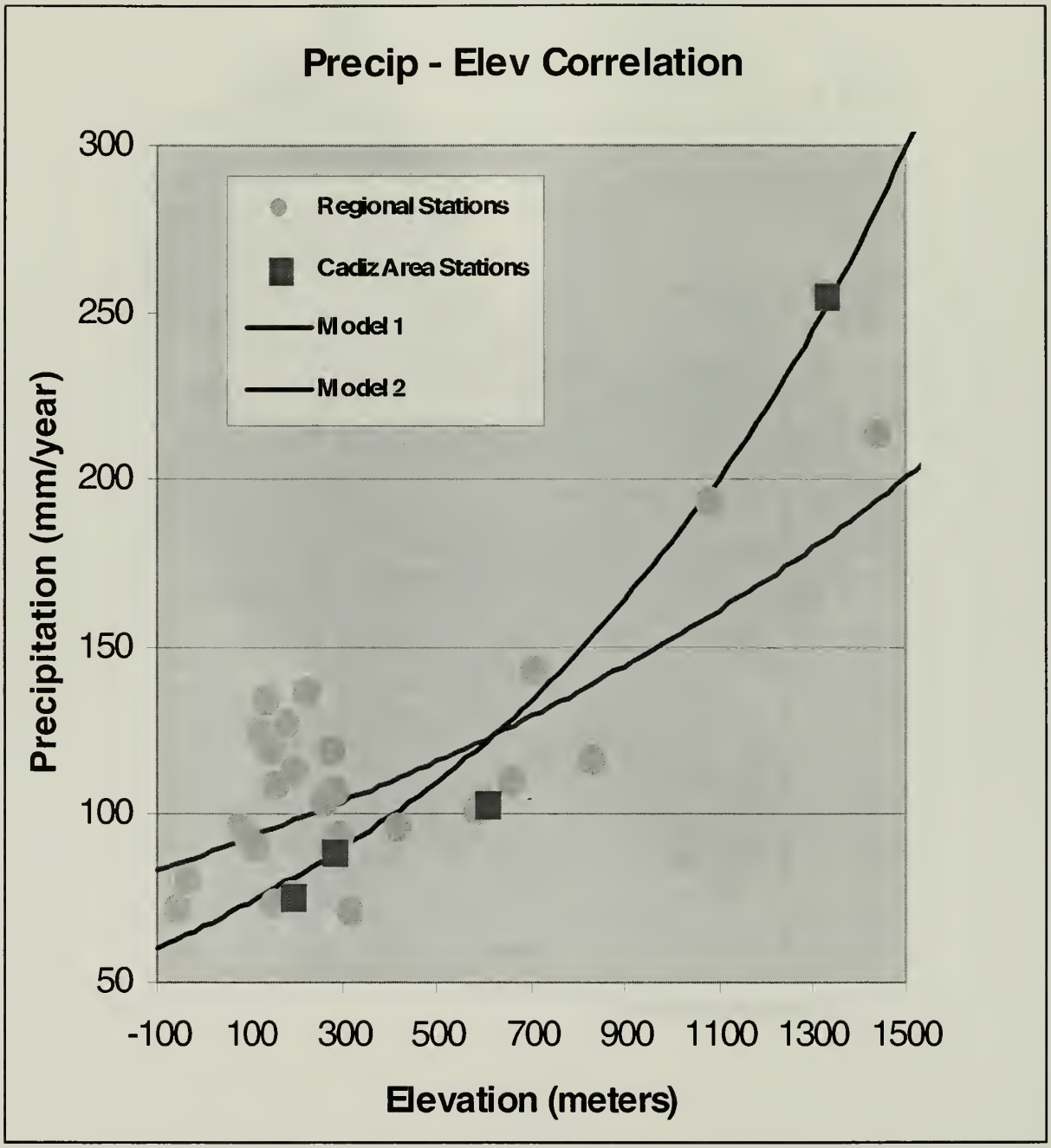


FIGURE 4--ELEVATION OF WATERSHEDS FOR THE CADIZ PROJECT

FIGURE 5--RELATIONSHIP BETWEEN ELEVATION AND PRECIPITATION



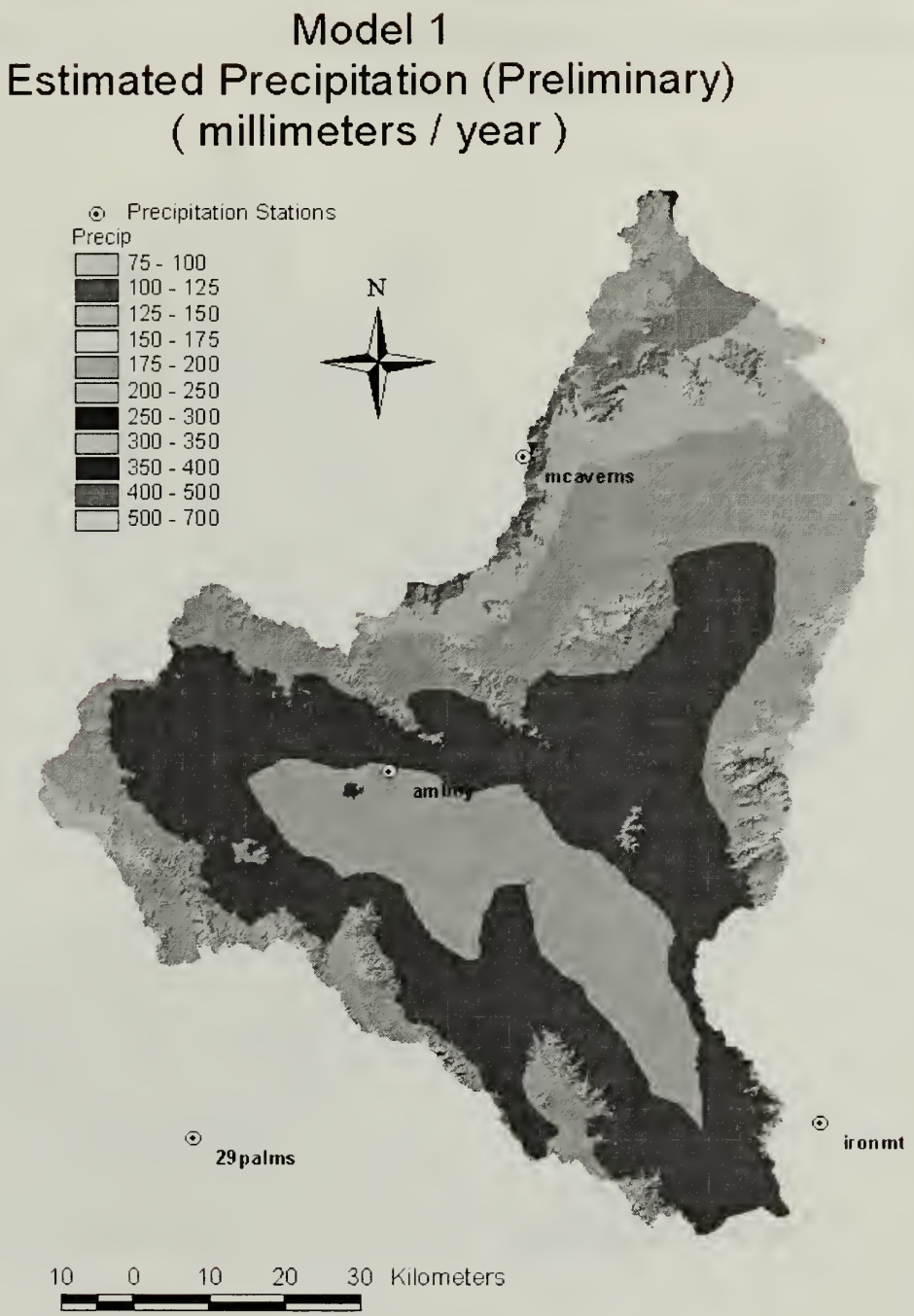


FIGURE 6--MODEL 1 PRECIPITATION FOR THE CADIZ PROJECT STUDY AREA

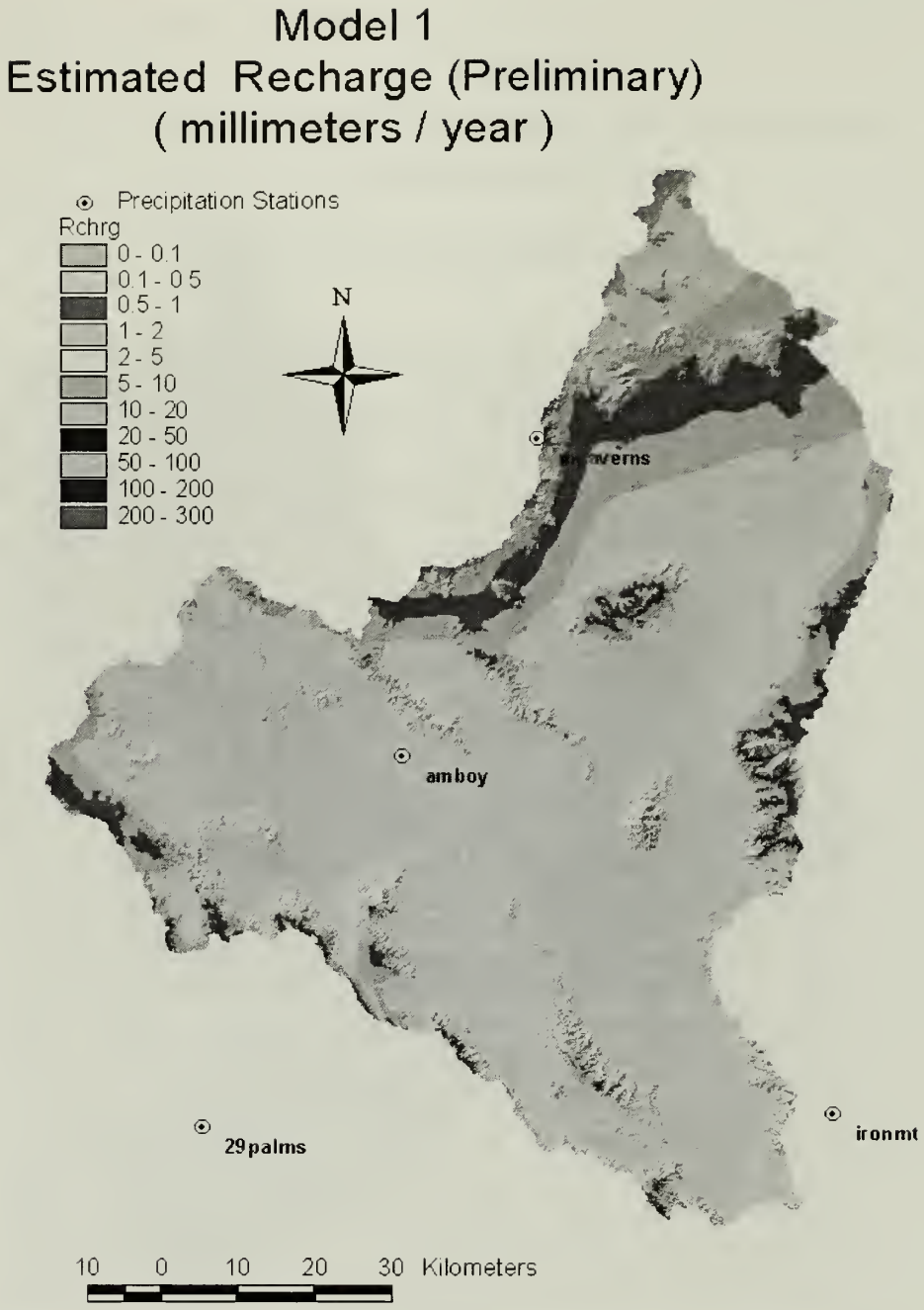


FIGURE 7--MODEL 1 ESTIMATEDRECHARGE FOR THE CADIZ PROJECT STUDY AREA



FIGURE 8— COMPARISON OF STATSGO SOIL MAP GROUPS WITH MODEL 1 ESTIMATED RECHARGE FOR THE HIGH RECHARGE AREAS

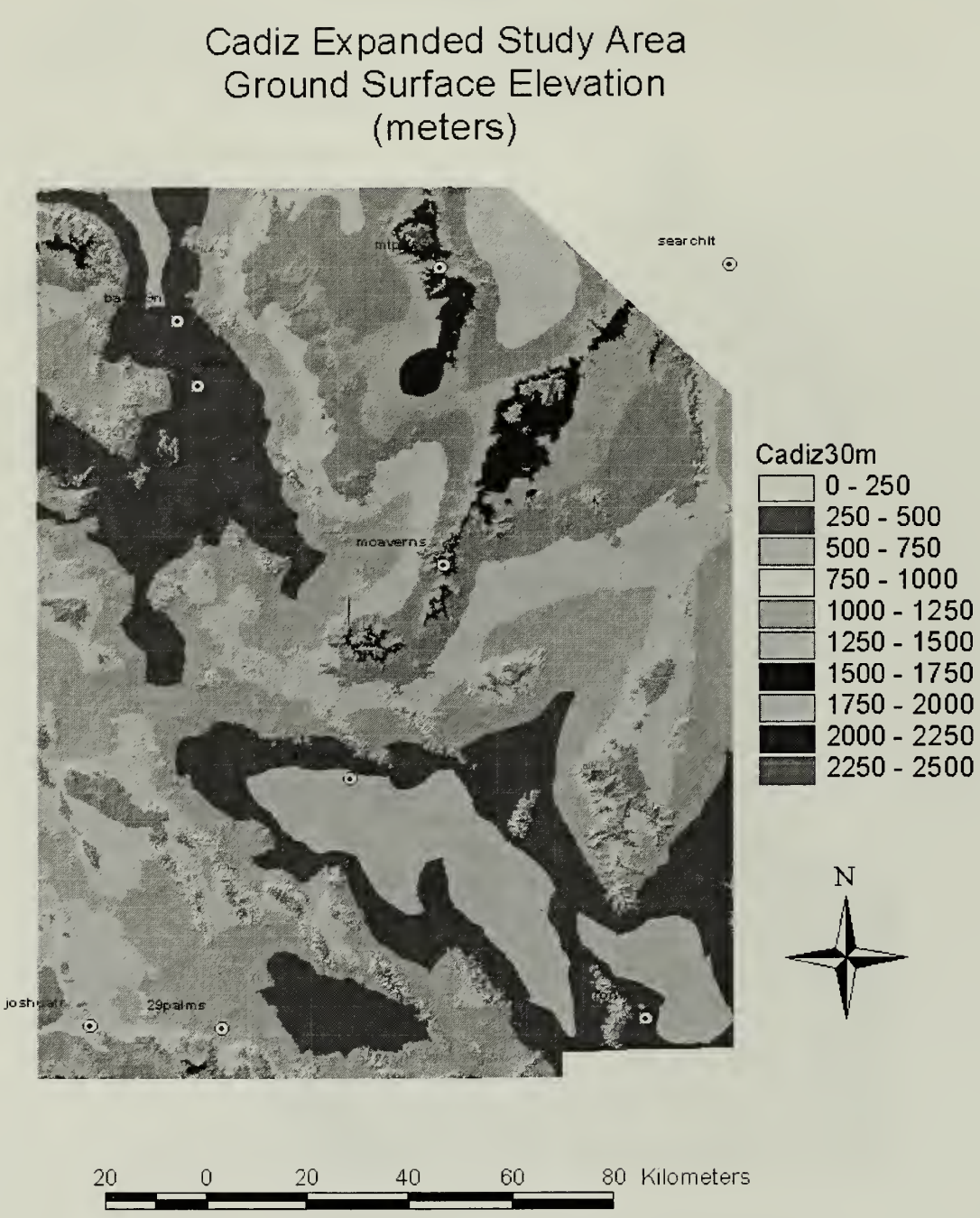


FIGURE 9--MODEL 1 EXPANDED AREA ELEVATION

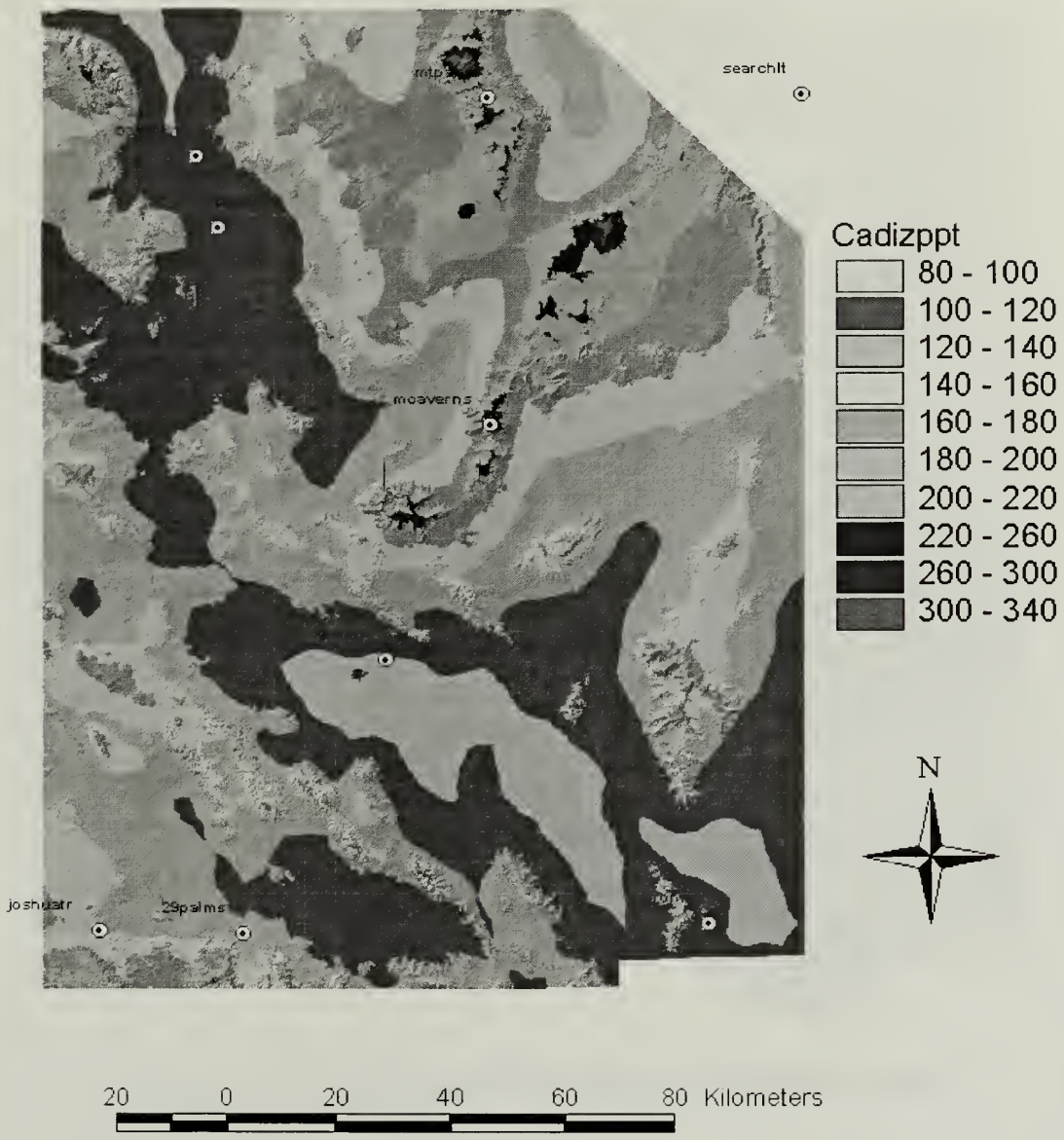


FIGURE 10--MODEL 1 EXPANDED AREA ESTIMATED PRECIPITATION

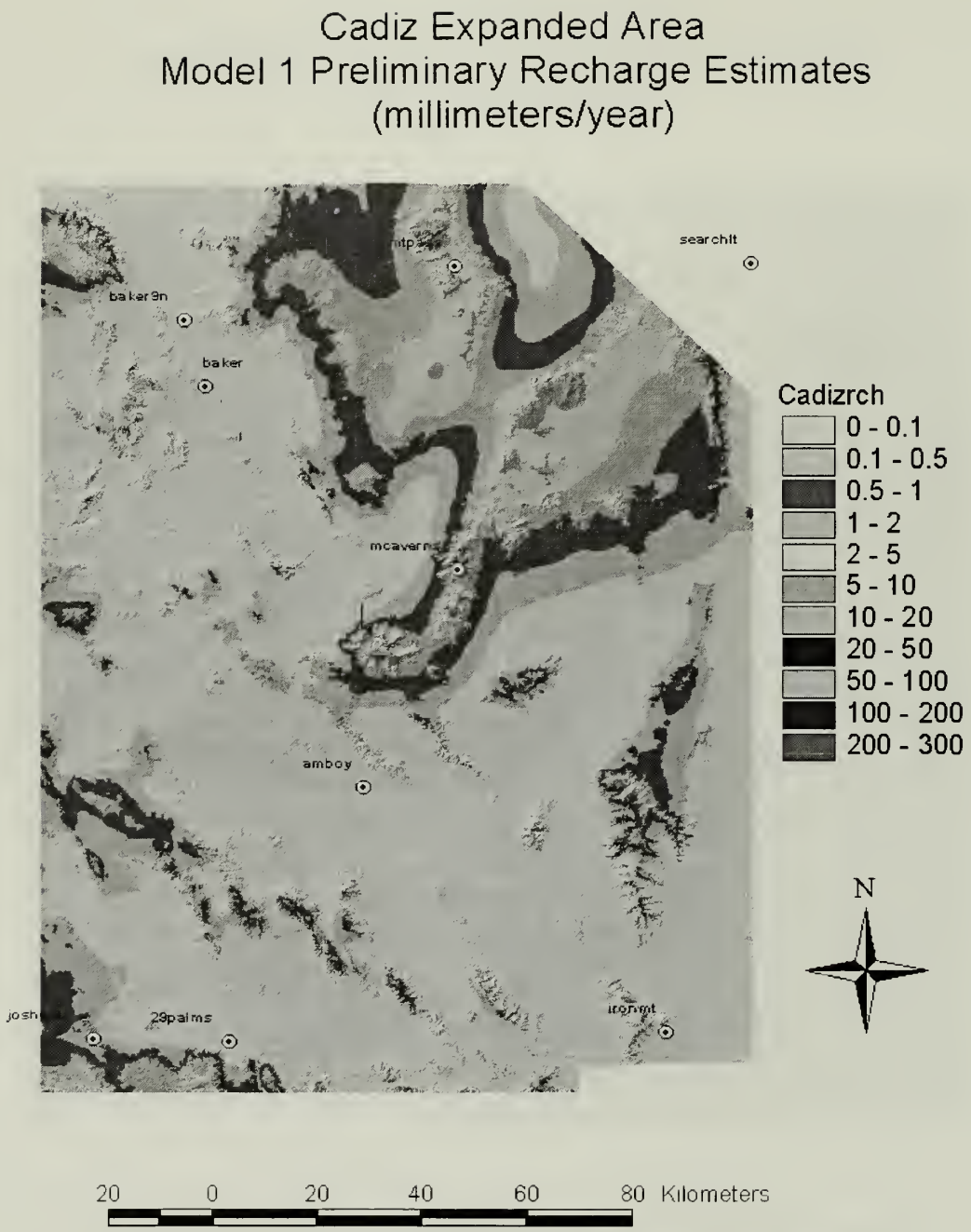


FIGURE 11--MODEL1 EXPANDED AREA ESTIMATED RECHARGE

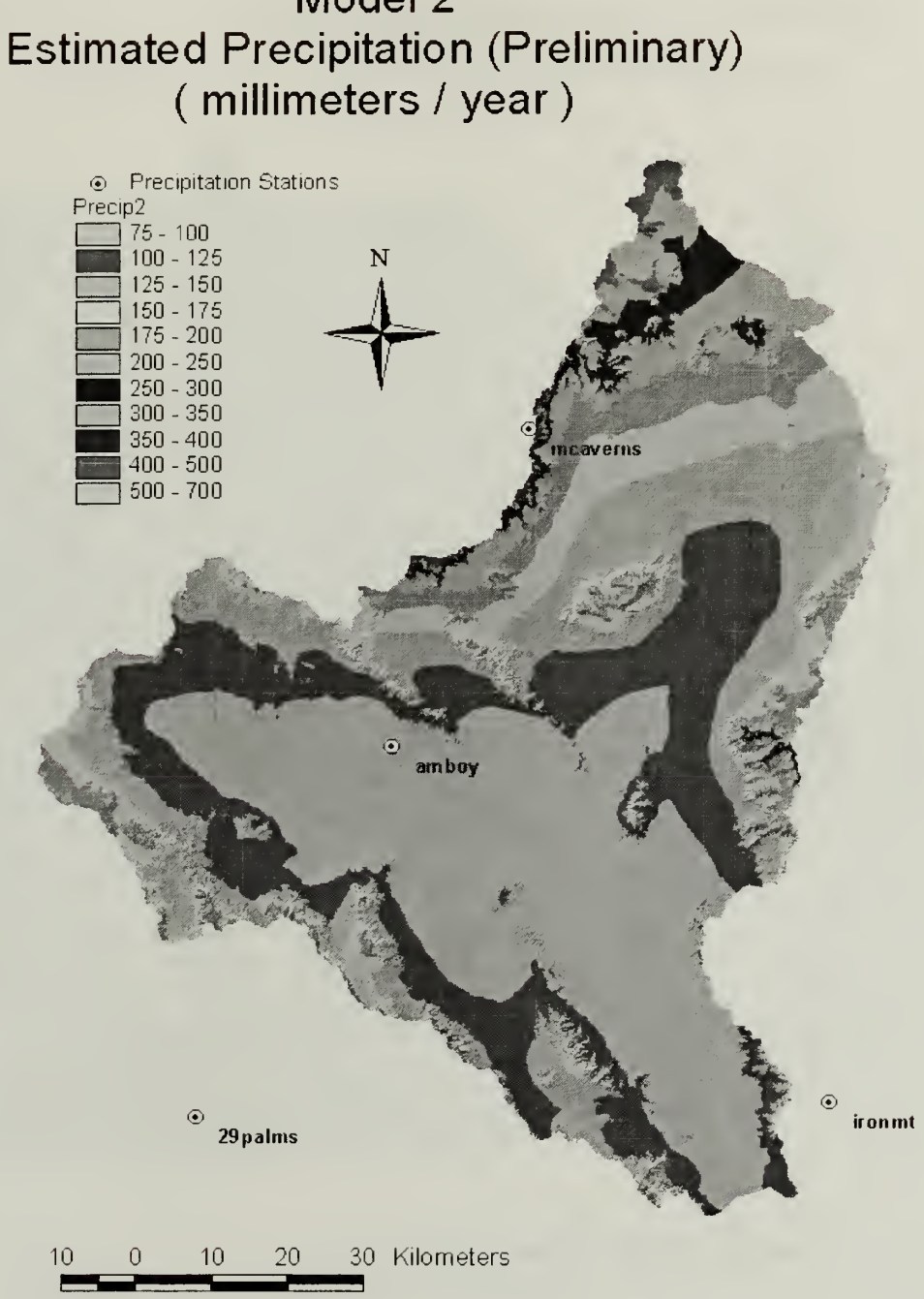


FIGURE 12--MODEL 2 ESTIMATED PRECIPITATION FOR CADIZ PROJECT STUDY AREA

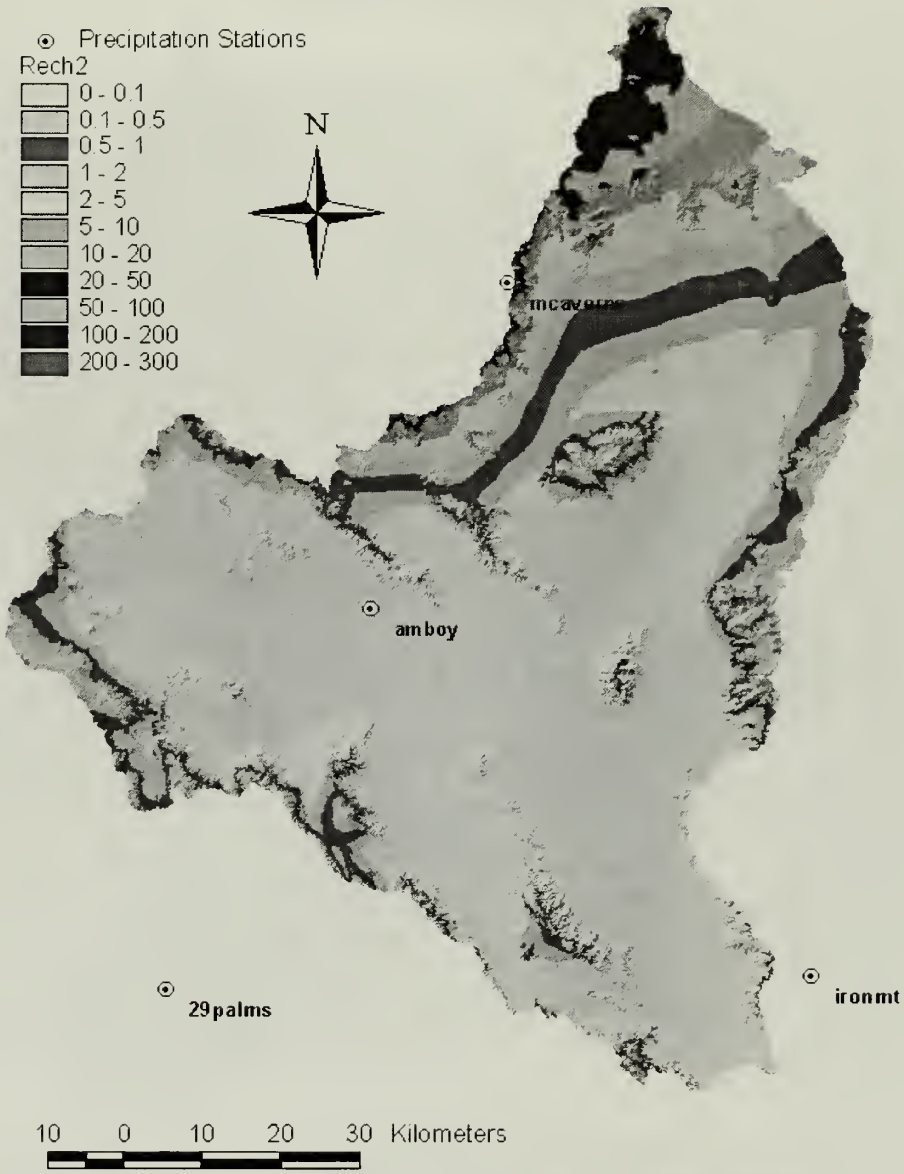


FIGURE 13--MODEL 2 ESTIMATED RECHARGE FOR CADIZ PROJECT STUDY AREA

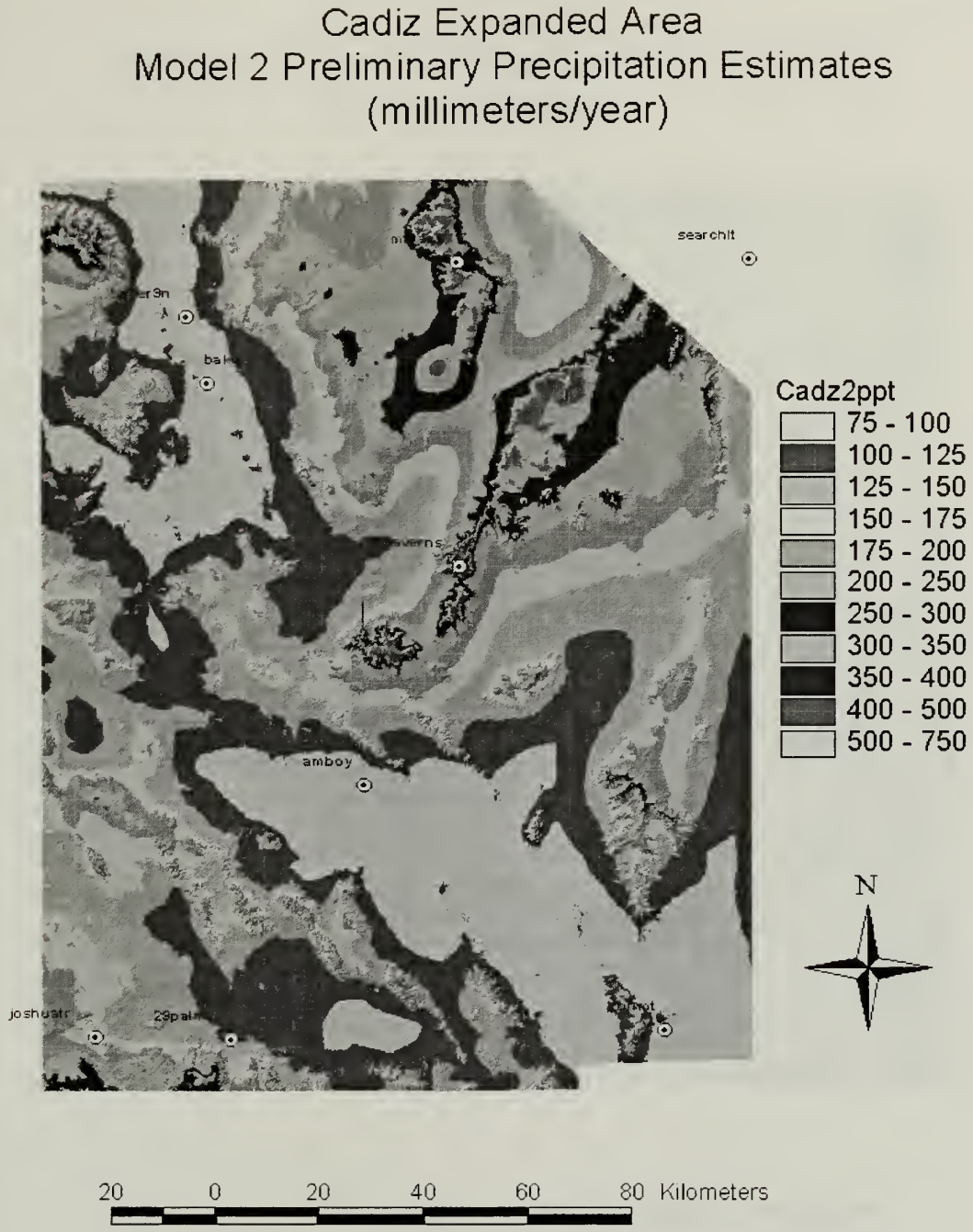


FIGURE 14--MODEL 2 EXPANDED AREA ESTIMATED PRECIPITATION

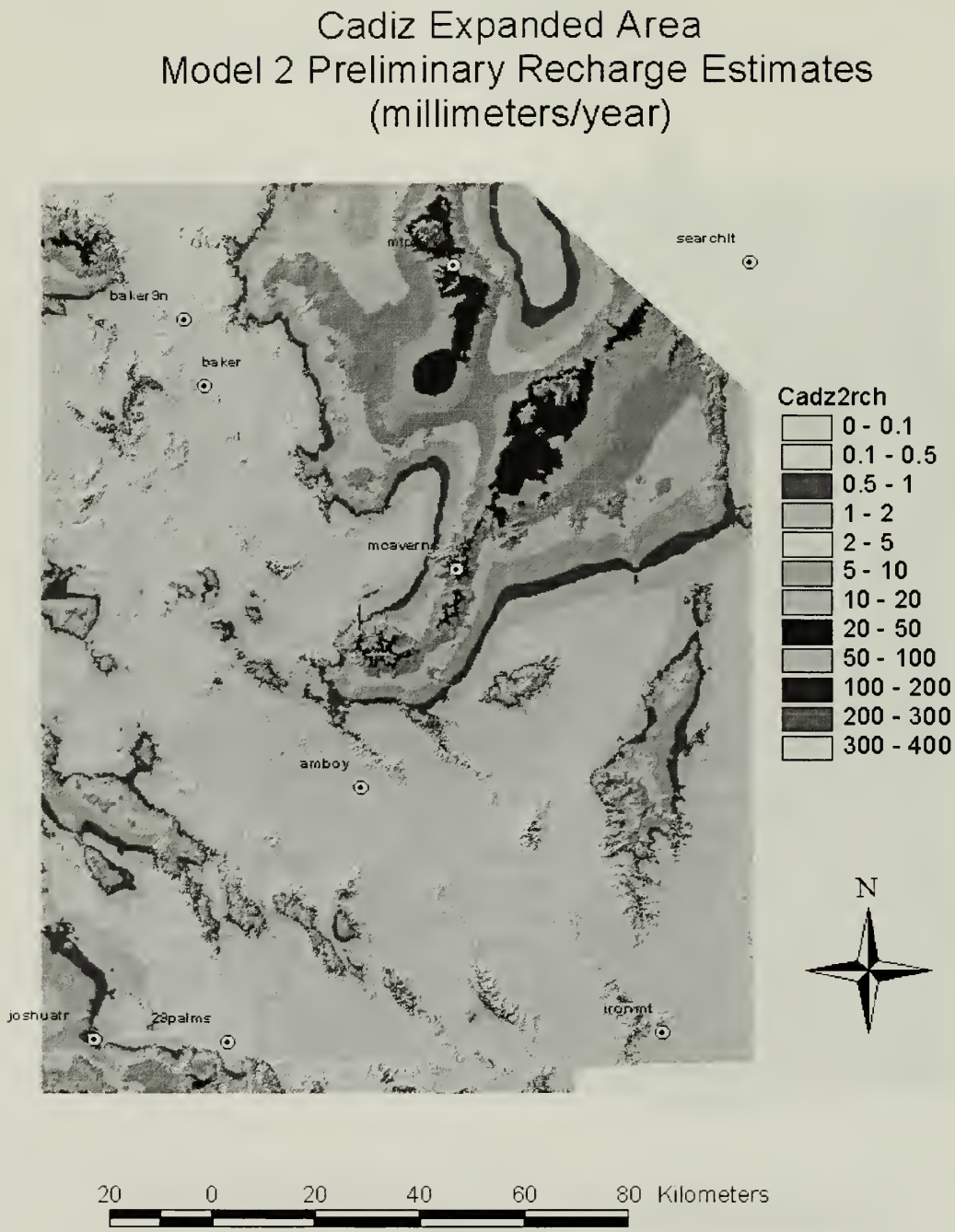
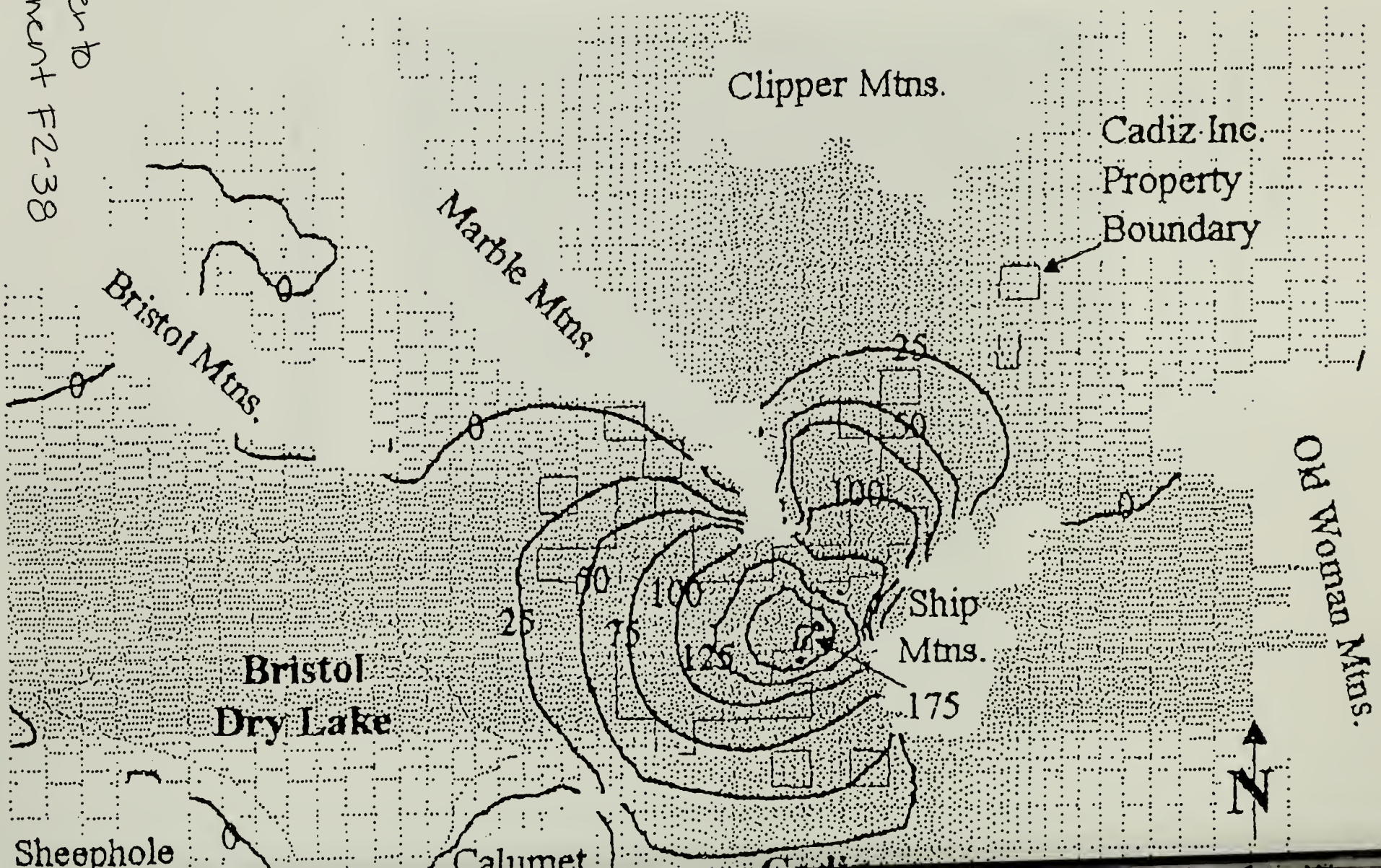


FIGURE 15--MODEL 2 EXPANDED AREA ESTIMATED RECHARGE

Refer
to comment
F2-38

Attachment 2:
Groundwater Contours from Cadiz, Inc.

SCENARIO 5 (AVERAGE) MAXIMUM DRAWDOWN (YEAR 34)



PARTMENT OF TRANSPORTATION
STRICT 8
W Fourth Street, 6th Floor MS 726
Bernardino, CA 92401-1400
ONE (909) 383-6327
X (909) 383-6890

December 1, 1999

08-SBd-40-90.00
SCH 99021039

S1

Mr. Dirk Reed, Project Manager
Metropolitan Water District
P. O. Box 54153
Los Angeles, CA 90054

Dear Mr. Reed:

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM

Thank you for sending us the Draft Environmental Impact Report/Draft Environmental Impact Statement dated November 1999 for the above referenced project.

We have no comment at this time but please send a copy of the Environmental Impact Report to this office as soon as it becomes available. S1-1

If you have any questions, please contact Romy Balanza, Development Reviewer, at (909) 383-6212 or FAX (909) 383-5936.

Sincerely,

LINDA GRIMES, Chief
Office of Forecasting/
IGR/CEQA Review

c: Scott Morgan, State Clearinghouse

ALIFORNIA STATE LANDS COMMISSION
00 Howe Avenue, Suite 100-South
acramento, CA 95825-8202

PAUL D. THAYER, *Executive Officer*
(916) 574-1800 FAX (916) 574-1810
California Relay Service From TDD Phone 1-800-735-2922
from Voice Phone 1-800-735-2929

Contact Phone: (916) 574-1872
Contact FAX: (916) 574-1885

February 22, 2000

File Ref: SD 1999-12-06.2

S2

Ms. Nadell Gayou
The Resources Agency
1020 Ninth Street, 3rd Floor
Sacramento, CA 95814

Mr. Jack Safely
Metropolitan Water District of Southern California
P. O. Box 54153
Los Angeles, CA 90054-0153

Dear Ms. Gayou and Mr. Safely:

Staff of the California State Lands Commission (CSLC or Commission) has reviewed the Draft Environmental Impact Report (DEIR) for the Cadiz Groundwater Storage and Dry-Year Supply Program, SCH #99021039. Based on our review, we offer the following comments. S2-1

CSLC Jurisdiction

Shortly after becoming a State, California was granted Sections 16 and 36 (2 square miles), or lands in lieu thereof, out of each township (36 square miles) then held by the federal government. These lands, classified as "School Lands," were given to the State to help support public education. While many of the School Lands were sold off over the years, the State retains an interest in approximately 1.3 million acres of mostly desert and forest lands. State legislation has mandated that revenues from these School Lands accrue to the State Teachers Retirement System. The CSLC has jurisdiction and authority over those School Lands and lieu lands that remain unsold. The CSLC also retains certain mineral interests in some lands that were previously conveyed into private ownership.

Based on our review of the proposed project, several of the proposed alignments of the water conveyance system appear to cross School Lands located in Section 36, T1N, R16E, SBM; Section 36, T5N, R14E, SBM and Section 36, T3N, R16E, SBM. These lands are under the jurisdiction of the CSLC and any use will require a lease from the Commission. The CSLC is, therefore, a Responsible Agency under the California Environmental Quality Act (CEQA).

In addition, the proposed well field development may have an impact on water rights and quality associated with lands under the CSLC's jurisdiction in Section 16, T5N, R15E, SBM; portions of Section 36, T5N, R14E, SBM and portions of Sections 16 and 36, T5N, R13E, SBM. Additional lands in which the State retains a mineral interest may also be impacted by the water development.

On page 5-8, the document discusses existing land use and ownership. Figure 5.2-1 shows land ownership in relation to the Cadiz Project Facilities. A map that compares land ownership to the maximum extent of areas affected by the project would also be helpful. For example, the maximum subsidence due to project operations (Appendix B) extends beyond the project facilities. Subsidence could, therefore, be shown in relationship to land ownership.

Additionally, pages 5-99 and 5-101 discuss the effects on groundwater levels due to operation of the project. Does Figure 5.5-13 depict the geographic extent of impacts to groundwater levels, or could it possibly extend beyond that depicted? Please clarify.

Specific Environmental Comments

On page 5-166, the document states that the Eastern Alternative (preferred alternative) will remove foraging habitat for sharp-shinned hawk, ferruginous hawk prairie falcon, yellow warbler, pallid bat and western mastiff bat. The document, however, does not indicate how many acres of foraging habitat for these species will be impacted. Please clarify.

Regarding page 5-179, Mitigation Measure B-7 is designed to reduce potential direct impacts on the American badger and desert kit fox to below a level of significance by removing these species from the construction corridor following consultation with the Department of Fish and Game (DFG). Once removed, please clarify what will be done with these animals. Will they be relocated to in-kind compensatory mitigation land?

Mitigation Measure B-17 at page 5-181 stipulates a speed limit of 35 miles per hour between Cadiz-Rice Road and the Iron Mountain Pumping Plant. Staff of the CSLC believes this speed limit should be reduced to 15 mph to allow desert tortoises a better opportunity to escape from being crushed by moving vehicles. Such speed limit should be observed by all construction crew and enforced by monitors on all access roads in construction areas of desert tortoise habitat.

Page 5-182, Mitigation Measure B-26, states that offsite property shall be provided at a 1:1 ratio for impacts to desert tortoise habitats (Mojave wash scrub, Mojave creosote bush scrub, and desert dunes/sandy fields). Furthermore, this area will be permanently protected and managed for the protection and preservation of this species. Does this include both temporary and permanent impacts? Staff believes compensation ratios should be 3:1 for permanent impacts and 1:1 for temporary impacts. Habitat values for offsite mitigation may not be as high as the habitat that was destroyed, and may involve time delays before it reaches a point where it meets the habitat that was originally destroyed. As such, compensation ratios of 3:1 would seem more appropriate. S2-8

Mitigation Measure B-33, page 5-184 also references compensation ratios for offsite mitigation for impacted wash habitat at a 1:1 ratio. The document, page 5-185, states that to reduce the level of significance of impacts related to the Eastern Alternative, replacement acreage for temporary and permanent acreage losses of Mojave wash scrub and desert tortoise habitat will be done at a 1:1 ratio. As mentioned above, staff believes that 3:1 for permanent impacts and a 1:1 ratio for temporary impacts is more appropriate. These ratios would apply to the other alternative alignments as well. S2-9

Page 8.2 of the document states that impacts associated with the build alternatives would not have significant impacts following implementation of the proposed mitigation measures. Staff believes that these impacts would be mitigated to a level of insignificance only if the ratios as mentioned above are implemented.

Thank for the opportunity to comment. If you have any questions regarding the CSLC's leasing process, please contact Alan Scott at (916) 574-1861. For questions regarding environmental content of the DEIR, please contact Kris Vardas at (916) 574-1877.

Sincerely,

Mary Griggs

Mary Griggs, Assistant Chief
Division of Environmental Planning
And Management

cc: Alan Scott
Kris Vardas

California Regional Water Quality Control Board
Colorado River Basin Region

ton H. Hickox
Secretary for
Environmental
Protection

Internet Address: http://www.swrcb.ca.gov/~rwqcb7
73-720 Fred Waring Drive, Suite 100, Palm Desert, California 92260
Phone (760) 346-7491 · FAX (760) 341-6820

Gray Davis
Governor

February 22, 2000

ATTN: Mr. Dirk Reed
Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054

ATTN: Mr. James Williams
Bureau of Land Management
California Desert District
6221 Box Springs Blvd.
Riverside, CA 92507-0714

S3

Dear Messrs. Reed and Williams:

SUBJECT: SCH NO. 99021039 CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM DRAFT ENVIRONMENTAL IMPACT STATEMENT/REPORT

Thank you for the opportunity to comment on the subject document.

Regarding the proposed project, we are primarily concerned about the overall water quality impact that may result from recharging an aquifer of high water quality with water of lesser quality. This includes maintaining the drinking water standards for all constituents. Also, we are concerned about salts and perchlorate that are present in the source water, as addressed in the EIS/EIR. The presence of MTBE would be an additional concern since it does not readily degrade when introduced to groundwater. S3-1

Our first comment is in regards to the following statement (page 5-95),

> "No Colorado River water is anticipated to migrate to the Bristol or Cadiz dry lakes during the Cadiz project. As a hypothetical scenario, however, because Colorado River water contains more sodium and calcium than the indigenous groundwater, any Colorado River water that migrated to the dry lakes and evaporated would contribute even more sodium and calcium to these dry lakes for the production of calcium chloride and sodium chloride. The availability of chloride in the brine underlying the dry lakes would facilitate production of these compounds, and be beneficial."

S3-2

It is unclear why increased production of calcium chloride and sodium chloride would be beneficial to the Bristol or Cadiz dry lake systems.

Further, we believe the EIS/EIR should address the likelihood that the proposed project has for increasing the hydraulic continuity/connectivity between the Cadiz aquifer and the saline aquifers underlying the Bristol and Fenner dry lakes; and the potential for an increase in salinity in the Cadiz Aquifer should hydraulic continuity be an issue. S3-3

Please contact Summer Bundy at (760) 776-8937 should you have any questions regarding these comments.

Sincerely,

JOSE L. ANGEL, P.E.
Chief of Basin Planning

JLA:sb

CC: State Clearinghouse

File: ER WDA

ATE OF CALIFORNIA - THE RESOURCES AGENCY GRAY DAVIS, *Governor*

EPARTMENT OF FISH AND GAME
0 Golden Shore, Suite 50
ng Beach, California 90802
10) 590-5113

Mr. Dirk Reed, Project Manager
Metropolitan Water District
P.O. Box54153
Los Angeles, California 90054

S4

February 22, 2000

Dear Mr. Reed:

The Department has reviewed the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Cadiz Groundwater Storage and Dry-Year Supply Program. The project proposes to construct a conveyance facility and spreading basins to deliver Colorado River water to the aquifer underlying the Cadiz and Fenner Valleys. The water will be stored in wet years and withdrawn in dry years. Indigenous groundwater will also be withdrawn during the dry years. In addition, a well field for extracting Project water from the Cadiz/Fenner aquifer, and associated power poles and lines will also be constructed. The project area is located in eastern San Bernardino County in the Cadiz and Fenner Valleys.

The Department commented on the Notice of Preparation for the project and raised several issues. These included the impacts to the natural water table and how this will affect the natural springs in the surrounding mountains; the potential for botulism outbreaks at the spreading basins; and the potential for raptor electrocution on the power line. These issues were not adequately addressed in the Draft EIR/EIS. In addition, the Department does not support the Eastern/Canal Alternative due to the large number of impacts to wildlife associated with this alternative. S4-1 S4-2 S4-3

The Draft EIR/EIS discusses the springs in the Clipper Mountains and how there will be no impacts to them from the project, but does not discuss the springs in other surrounding mountain ranges such as the Old Woman Mountains. These are critical water sources for bighorn sheep and other wildlife and are located within the Fenner and Cadiz watersheds as described on page 5-66. An analysis of any impacts, along with appropriate mitigation must be included. The Department recommends that monitoring of these springs be done as part of mitigation measure WR-1. S4-4 S4-5

The Draft EIR/EIS does not discuss the length of time water is anticipated to be present in the spreading basins. It does indicate that this could be a benefit, but does not discuss the potential for botulism outbreaks. In addition, depending upon the length of time the water is expected to be present, it could create a dependency by wildlife on a water source that will eventually disappear. S4-6

S4

Guidelines are available on power line construction methods that can reduce the potential for electrocution of raptors. These should be included in the document as a mitigation measure.

Thank you for the opportunity to comment on this document. Please direct any questions to Kimberly Nicol, Associate Biologist, at (760) 251-4827.

Sincerely,

Glenn Black

Glenn Black
Supervisor
Habitat Conservation - South

cc: G. Walker, USFWS, Barstow

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

ray Davis
GOVERNOR

Loretta Lynch
DIRECTOR

February 23, 2000

S5

Jack Safely
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Subject: Cadiz Groundwater Storage and Dry-Year Supply Program San Bernardino County, California
SCH#: 1999021039

Dear Jack Safely:

The State Clearinghouse submitted the above named Joint Document to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on February 22, 2000, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's eight-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

S5-1

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Senior Planner, State Clearinghouse

Enclosures
cc: Resources Agency

Document Details Report
State Clearinghouse Data Base

SCH#	1999021039
Project Title	Cadiz Groundwater Storage and Dry-Year Supply Program San Bernardino County, California
Lead Agency	Metropolitan Water District of Southern California
Type	jd Joint Document
Description	The project involves construction, Operation, and maintenance of facilities to convey, store, and withdraw Project water into and from the Cadiz/Fenner groundwater basin in the eastern Mojave Desert region of San Bernardino County. Major facilities include pumping plant, pipeline, spreadir basins, wellfield and power distribution.

Lead Agency Contact

Name	Jack Safely		
Agency	Metropolitan Water District of Southern California		
Phone	213/217-6581	*Fax*	
email			
Address	P.O. Box 54153		
City	Los Angeles	*State* CA	*Zip* 90054-0153

55-

Project Location

County	San Bernardino			
City	Cadiz			
Region				
Cross Streets	Route 66 and Cadiz Road			
Parcel No.				
Township	*Range*	*Section*	*Base*	

Proximity to:

Highways	Route 66
Airports	
Railways	BNSF AND ARZC
Waterways	Schuler, Washington
Schools	
Land Use	Agriculture and Resource Conservation

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Drainage/Absorption; Geologic/Seismic; Minerals; Noise; Public Services; Recreation/Parks; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wa Supply; Wildlife; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Colorado River Board; Department of Conservation; Department of Fish and Game, Region 6; Department of Parks and Recreation; Department of Water Resources; Caltrans District 8; Department of Food and Agriculture; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Board, Region 7; State Lands Commission

Date Received 11/24/1999 *Start of Review* 11/24/1999 *End of Review* 02/22/2000

Note: Blanks in data fields result from insufficient information provided by lead agency.

PARTMENT OF TRANSPORTATION
TRICT 8
W Fourth Street, 6th Floor MS 726
Bernardino, CA 92401-1400
NE (909) 383-6327
(909) 383-6890

RECEIVED
DEC - 7 1999
STATE CLEARINGHOUSE

December 1, 1999

08-SBd-40-90.00
SCH 99021039

Mr. Dirk Reed, Project Manager
Metropolitan Water District
P. O. Box 54153
Los Angeles, CA 90054

clear
2/22/2000
e

Dear Mr. Reed:

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM

Thank you for sending us the Draft Environmental Impact Report/Draft Environmental Impact Statement dated November 1999 for the above referenced project.

We have no comment at this time but please send a copy of the Environmental Impact Report to this office as soon as it becomes available. S5-2

If you have any questions, please contact Romy Balanza, Development Reviewer, at (909) 383-6212 or FAX (909) 383-5936.

Sincerely,

Original signed by Robert (Mike) Sim for

LINDA GRIMES, Chief
Office of Forecasting/
IGR/CEQA Review

c: Scott Morgan, State Clearinghouse

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Lorett
DIR

March 2, 2000

S6

Jack Safely
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Subject: Cadiz Groundwater Storage and Dry-Year Supply Program San Bernardino County, California
SCH#: 1999021039

Dear Jack Safely:

The enclosed comment (s) on your Joint Document was (were) received by the State Clearinghouse after the end of the state review period, which closed on February 22, 2000. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project.

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the eight-digit State Clearinghouse number (1999021039) when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Senior Planner, State Clearinghouse

Enclosures
cc: Resources Agency

California Regional Water Quality Control Board
Colorado River Basin Region

H. Hickox
tary for
onmental
tection

Internet Address: http://www.swrcb.ca.gov/~rwqcb7
73-720 Fred Waring Drive, Suite 100, Palm Desert, California 92260
Phone (760) 346-7491 · FAX (760) 341-6820

Gray Davis
Governor

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Clear 2/25/2000 Late e

February 22, 2000

ATTN: Mr. Dirk Reed
Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054

ATTN: Mr. James Williams
Bureau of Land Management
California Desert District
6221 Box Springs Blvd.
Riverside, CA 92507-0714

Dear Messrs. Reed and Williams:

SUBJECT: SCH NO. 99021039 CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM DRAFT ENVIRONMENTAL IMPACT STATEMENT/REPORT

Thank you for the opportunity to comment on the subject document.

Regarding the proposed project, we are primarily concerned about the overall water quality impact that may result from recharging an aquifer of high water quality with water of lesser quality. This includes maintaining the drinking water standards for all constituents. Also, we are concerned about salts and perchlorate that are present in the source water, as addressed in the EIS/EIR. The presence of MTBE would be an additional concern since it does not readily degrade when introduced to groundwater. S6-2

Our first comment is in regards to the following statement (page 5-95),

> "No Colorado River water is anticipated to migrate to the Bristol or Cadiz dry lakes during the Cadiz project. As a hypothetical scenario, however, because Colorado River water contains more sodium and calcium than the indigenous groundwater, any Colorado River water that migrated to the dry lakes and evaporated would contribute even more sodium and calcium to these dry lakes for the production of calcium chloride and sodium chloride. The availability of chloride in the brine underlying the dry lakes would facilitate production of these compounds, and be beneficial."

It is unclear why increased production of calcium chloride and sodium chloride would be beneficial to the Bristol or Cadiz dry lake systems.

Further, we believe the EIS/EIR should address the likelihood that the proposed project has for increasing the hydraulic continuity/connectivity between the Cadiz aquifer and the saline aquifers underlying the Bristol and Fenner dry lakes; and the potential for an increase in salinity in the Cadiz Aquifer should hydraulic continuity be an issue.

Please contact Summer Bundy at (760) 776-8937 should you have any questions regarding these comments.

Sincerely,

JOSE L. ANGEL, P.E.
Chief of Basin Planning

JLA:sb

CC: State Clearinghouse

File: ER WDA

THERN CALIFORNIA

SOCIATION of
VERNMENTS

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County Transportation Commission: Simi Valley

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February 17, 2000

Mr. Dirk W. Reed
Project Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, CA 90054

R1

RE: **Comments on the Draft Environmental Impact Report / Environmental Impact Statement for the Cadiz Groundwater Storage and Dry-Year Supply Program - SCAG No. I 19990538**

Dear Mr. Reed:

Thank you for submitting the **Draft Environmental Impact Report / Environmental Impact Statement for the Cadiz Groundwater Storage and Dry-Year Supply Program** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG assists cities, counties and other agencies in reviewing projects and plans for consistency with regional plans. R1-1

The attached detailed comments are meant to provide guidance for considering the proposed project within the context of our regional goals and policies. If you have any questions regarding the attached comments, please contact Jeffrey Smith, Senior Planner, at (213) 236-1867. Thank you.

Sincerely,

J. DAVID STEIN
Manager, Performance Assessment and Implementation

COMMENTS ON THE
DRAFT
ENVIRONMENTAL IMPACT REPORT
ENVIRONMENTAL IMPACT STATEMENT
FOR THE
CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM
SCAG NO. I 19990538

PROJECT DESCRIPTION

The proposed Project consists of the construction and operation of an approximate 35-mile pipeline for conveying water between the Iron Mountain Pumping Plant on the Colorado River Aqueduct and the Cadiz/Fenner area, and a Cadiz Pumping Plant at the Metropolitan Water Districts' existing Iron Mountain Pumping Plant facility. In addition, the proposed Project will also include 390 acres of spreading basins for percolation of Colorado River water into the groundwater basin in the Cadiz/Fenner area, a wellfield for extracting stored and indigenous groundwater, and associated power poles and lines along the conveyance pipeline in the wellfield.

The proposed Project would involve storage of a minimum of 1.0 million acre-feet depending on availability of Colorado River water for storage, storage or extraction at a rate of approximately 150,000 acre-feet per year, and transfer of up to 2.0 million acre-feet of indigenous groundwater depending on the natural recharge of the groundwater basin over the 50 year term of the proposed Project. Alternatives to the proposed project include the Western Alternative, Combination Alternative, Eastern Alternative, Eastern/Canal Alternative and No Project Alternative.

The proposed Project is located in the eastern Mojave Desert region of San Bernardino County in the Cadiz and Fenner valleys and crosses federal land administered by the Bureau of Land Management.

INTRODUCTION TO SCAG REVIEW PROCESS

The document that provides the primary reference for SCAG's project review activity is the Regional Comprehensive Plan and Guide (RCPG). The RCPG chapters fall into three categories: core, ancillary, and bridge. The Growth Management (adopted June 1994), Regional Transportation (adopted April 1998), Air Quality (adopted October 1995), Hazardous Waste Management (adopted November 1994), and Water Quality (adopted January 1995) chapters constitute the core chapters. These core chapters respond directly to federal and state planning requirements. The core chapters constitute the base on which local governments ensure consistency of their plans with applicable

regional plans under CEQA. The Air Quality and Growth Management chapters contain both core and ancillary policies, which are differentiated in the comment portion of this letter. The Regional Transportation Plan (RTP) constitutes the region's Transportation Plan. The RTP policies are incorporated into the RCPG.

Ancillary chapters are those on the Economy, Housing, Human Resources and Services, Finance, Open Space and Conservation, Water Resources, Energy, and Integrated Solid Waste Management. These chapters address important issues facing the region and may reflect other regional plans. Ancillary chapters, however, do not contain actions or policies required of local government. Hence, they are entirely advisory and establish no new mandates or policies for the region. R1-2

Bridge chapters include the Strategy and Implementation chapters, functioning as links between the Core and Ancillary chapters of the RCPG.

Each of the applicable policies related to the proposed project are identified by number and reproduced below in italics followed by SCAG staff comments regarding the consistency of the Project with those policies.

General SCAG Staff Comments

The Draft EIR/EIS, in Sections 2.0 (Assessment of Project Need and Purpose), 5.3 (Socioeconoimcs) and 5.6 (Air Quality) addresses the relationship of the proposed project to **applicable regional plans** as required by Section 15125 [d] *of Guidelines for the Implementation of the Califomia Environmental Quality Act.* R1-3

CONSISTENCY WITH REGIONAL COMPREHENSIVE PLAN AND GUIDE POLICIES

The Growth Management Chapter (GMC) of the Regional Comprehensive Plan and Guide contains a number of policies that are particularly applicable to The Cadiz Groundwater Storage and Dry-Year Supply Program. R1-4

Core Growth Management Policies

3.01 *The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.* R1-5

SCAG staff comments. The Draft EIR/EIS in Sections, 2.0 (Assessment of Project Need and Purpose) and 5.3 (Socioeconomics) discusses the relationship of the proposed Project to SCAG's population, housing and employment forecasts. The proposed Project will not have an impact on population, housing and employment.

The Project is consistent with this core RCPG policy.

3.03 *The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.*

SCAG staff comments: The Draft EIR/EIS, on page 4-9, includes a discussion on the construction schedule for the proposed Project. Elements included in the construction schedule are the pumping plant, water conveyance facility, power distribution facilities, spreading basins and wellfields. Each item has a unique time frame for construction. However, a schedule for each specific item is not included in the Draft EIR/EIS. According to the Draft EIR/EIS, the proposed Project would be completed by the Winter of 2000/2001. The Project is consistent with this core RCPG policy.

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE REGIONAL STANDARD OF LIVING

The Growth Management goals to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be competitive, strengthen the regional strategic goal to stimulate the regional economy. The evaluation of the proposed project in relation to the following policies would be intended to guide efforts toward achievement of such goals and does not infer regional interference with local land use powers

3.09 *Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.*

SCAG staff comments. The Draft EIR/EIS in Sections 5.12 (Public Services) and 5.13 (Utilities and Service Systems) identifies public services, utility and service facilities to serve the proposed Project. The Project would not have an adverse impact on public services, phone, natural gas, electricity, water, stormwater, and solid waste facilities. Mitigation measures, however, are proposed to address coordination with emergency service providers and construction activities around the aforementioned utility and service systems. The Project is supportive of this ancillary RCPG policy.

3.10 *Support local jurisdictions' actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.*

SCAG staff comments. The Draft EIR/EIS in Section 1 (Introduction)

acknowledges that the proposed Project, "...would be required to obtain permits and approvals from federal, state and local/regional agencies...". Table 1-1 lists those agencies and the possible permits and approvals required. The Project is supportive of this ancillary RCPG policy. R1-9

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPRPVE THE REGIONAL QUALITY OF LIFE

The Growth Management goals to attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional strategic goal of maintaining the regional quality of life. The evaluation of the proposed project in relation to the following policies would be intended to provide direction for plan implementation, and does not allude to regional mandates. R1-10

3.18 *Encourage planned development in locations least likely to cause adverse environmental impacts.*

SCAG staff comments. The proposed Project is located in the eastern Mojave Desert region of San Bernardino County. The Project is designed in a manner, which will minimize identified environmental impacts. The mitigation measures included in the Draft EIR/EIS have been developed to address the identified environmental impacts; and to identify implementation procedures, responsibilities and timing for each mitigation measure. The Project is supportive of this ancillary RCPG policy. R1-11

3.19 *SCAG shall support policies and actions that preserve open space areas identified in local, state and federal plans.* R1-12

SCAG staff comments. The Draft EIR/EIS in Section 5.17 (Wilderness/Recreation) addresses the potential impacts of the proposed Project related to wilderness and recreation facilities. The Project is adjacent to the Old Woman Mountains and Cadiz Dunes Wilderness Areas and the Johnson Valley to Parker Race Route. The Project would not conflict with any established wilderness and recreational uses. Mitigation REC-1 addresses construction activity in the vicinity of the Johnson Valley to Parker Race Route. In addition, mitigation measures in Sections 5.11 (Noise) and 5.14 (Aesthetics) address construction related noises, project views and lighting related to wilderness and recreation facilities. The Project is supportive of this ancillary RCPG policy.

3.20 *Support the protection of vital resources such as wetlands, groundwater recharge* R1-13

areas, woodlands, production lands, and land containing unique and endangered plants and animals.

SCAG staff comments. The Draft EIR/EIS in Section 5.8 (Biological Resources) includes a discussion on plant and wildlife communities, special interest species and habitats (desert tortoise), and wildlife movement corridors. The proposed Project will have impacts on the aforementioned items. There are over 30 mitigation measures that specifically address these items. The Project is supportive of this ancillary RCPG policy.

3.21 *Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resource and archeological sites.*

SCAG staff comments. The Draft EIR/EIS in Sections 5.15 (Cultural Resources) and 5.16 (Paleontological Resources) identifies a number of cultural, archeological and paleontological resources. Mitigation measures outlined in each section have been developed to address identified impacts. Despite the mitigation measures, impacts to paleontological resources would be substantially reduced. However, the impacts may not be mitigated to below a level of significance. The Project is supportive of this ancillary RCPG policy.

3.22 *Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.*

SCAG staff comments. The Draft EIS/EIR in Section 5.4 (Topography, Geology, Seismicity and Soils) identifies potential impacts related to seismic ground shaking, liquefaction, soils, slope stability, erosion, drainage and flooding sedimentation and subsidence. Mitigation measures included in this section have been developed to address identified impacts through the implementation of building codes and specific requirements and/or project design. The Project is supportive of this ancillary RCPG policy.

3.23 *Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.*

SCAG staff comments. See SCAG staff comments on policies 3.09, 3.18, 3.20, 3.21 and 3.22. The Draft EIR/EIS in Section 5.11 (Noise), identifies noise impacts due to construction and operation related activities. Mitigation measures described in this section have been developed to address the identified impacts. The Project is supportive of this ancillary RCPG policy.

AIR QUALITY CHAPTER CORE ACTIONS

The **Air Quality Chapter (AQC)** core actions that are generally applicable to the Project are as follows:

5.11 Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.

SCAG staff comments. The Draft EIR/EIS in Section 5.6 (Air Quality) addresses air quality impacts related to construction and operation activities. Mitigation measures outlined in this section will address the identified impacts. Despite the mitigation measures, the identified impacts cannot be mitigated to below a level of significance. The Project is partially consistent with this core RCPG policy.

R1-17

WATER QUALITY CHAPTER RECOMMENDATIONS AND POLICY OPTIONS

The Water Quality Chapter core recommendations and policy options relate to the two water quality goals: to restore and maintain the chemical, physical and biological integrity of the nation's water; and, to achieve and maintain water quality objectives that are necessary to protect all beneficial uses of all waters. The core recommendations and policy options that are particularly applicable to Project include the following:

R1-18

11.02 Encourage "watershed management" programs and strategies, recognizing the primary role of local government in such efforts.

SCAG staff comments. The Draft EIR/EIS does not address the subject of "watershed management" programs and strategies. It would be helpful if the Final EIR/EIS would provide a discussion and address the manner in which the Project is supportive of or detracts from the achievement of this policy. Based on the information provided in the Draft EIR, we are unable to determine whether the Project is consistent with this core RCPG policy.

R1-19

11.03 Coordinate watershed management planning at the subregional level by (1) providing consistent regional data; (2) serving as a liaison between affected local, state, and federal watershed management agencies; and (3) ensuring that watershed planning is consistent with other planning objectives (e.g., transportation, air quality, water supply).

R1-20

SCAG staff comments. See SCAG staff comments on policy 11.02. . It would be helpful if the Final EIR/EIS would provide a discussion and address the manner in which the Project is supportive of or detracts from the achievement of this policy. Based on the information provided in the Draft EIR/EIS, we are unable to determine whether the Project is consistent with this core RCPG policy.

11.05 *Support regional efforts to identify and cooperatively plan for wetlands to facilitate both sustaining the amount and quality of wetlands in the region and expediting the process for obtaining wetlands permits.*

SCAG staff comments. The Draft EIR/EIS does not address the subject of regional efforts to identify and cooperatively plan for wetlands. It would be helpful if the Final EIR/EIS would provide a discussion and address the manner in which the Project is supportive of or detracts from the achievement of this policy. The Draft EIR/EIS, on page 1-11, includes a short discussion on project approvals and permits. However, based on the information provided in the Draft EIR/EIS, we are unable to determine whether the Project is consistent with this core RCPG policy.

11.06 *Clean up the contamination in the region's major groundwater aquifers since its water supply is critical to the long-term economic and environmental health of the region. The financing of such clean-ups should leverage state and federal resources and minimize significant impacts on the local economy.*

SCAG staff comments. The Draft EIR/EIS, in Section 5.5 (Water Resources) includes a discussion on groundwater. Mitigation measures in this section calls for the establishment and implementation of a Monitoring and Management Plan to, "...monitor, maintain and regulate all groundwater extraction and storage operations within the Project area..." (page 5-105). The Project is consistent with this core RCPG policy.

11.07 *Encourage water reclamation throughout the region where it is cost-effective, feasible, and appropriate to reduce reliance on imported water and wastewater discharges. Current administrative impediments to increased use of wastewater should be addressed.*

SCAG staff comments. The Draft EIR/EIS does not address the issue of water reclamation. It would be helpful if the Final EIR/EIS would provide a discussion and address the manner in which the Project is supportive of or detracts from the achievement of this policy. Based on the information provided in the Draft EIR/EIS, we are unable to determine whether the Project is consistent with this core RCPG policy.

CONCLUSIONS AND RECOMMENDATIONS:

1. As noted in the staff comments, Cadiz Groundwater Storage and Dry-Year Supply Program is consistent with or supports many of the core and ancillary policies, actions and goals in the Regional Comprehensive Plan and Guide (RCPG), and Regional Transportation Plan (RTP). R1-24

2. Based on the information in the Draft EIR, we are unable to determine whether the Project is consistent with core policies 11.02, 11.03 and 11.05. The Project is partially consistent with core policy 5.11. R1-25

3. The Final EIR should address the relationships (consistency with core policies and support of ancillary policies) to SCAG's Regional Comprehensive Plan and Guide and discuss any inconsistencies between the proposed project and applicable regional plans. The response should also discuss any inconsistencies between the proposed project and applicable regional plans. We suggest that you identify the specific policies, by policy number, with a discussion of consistency or support with each policy. R1-26

4. All mitigation measures associated with the project should be monitored in accordance with CEQA requirements. R1-27

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Roles and Authorities

THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS is a ***Joint Powers Agency*** established under California Government Code Section 6502 et seq. Under federal and state law, the Association is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). Among its other mandated roles and responsibilities, the Association is:

Designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. 134(g)-(h), 49 U.S.C. 1607(f)-(g) et seq., 23 C.F.R. 450, and 49 C.F.R. 613. The Association is also the designated ***Regional Transportation Planning Agency***, and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080.

Responsible for developing the demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan***, pursuant to California Health and Safety Code Section 40460(b)-(c). The Association is also designated under 42 U.S.C. 7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

Responsible under the Federal Clean Air Act for determining ***Conformity*** of Projects, Plans and Programs to the State Implementation Plan, pursuant to 42 U.S.C. 7506.

Responsible, pursuant to California Government Code Section 65089.2, for ***reviewing all Congestion Management Plans (CMPs) for consistency with regional transportation plans*** required by Section 65080 of the Government Code. The Association must also evaluate the consistency and compatibility of such programs within the region.

The authorized regional agency for ***Inter-Governmental Review*** of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

Responsible for reviewing, pursuant to Sections 15125(b) and 15206 of the CEQA Guidelines, ***Environmental Impact Reports*** of projects of regional significance for consistency with regional plans.

The authorized ***Areawide Waste Treatment Management Planning Agency***, pursuant to 33 U.S.C. 1288(a)(2) (Section 208 of the Federal Water Pollution Control Act)

Responsible for preparation of the ***Regional Housing Needs Assessment***, pursuant to California Government Code Section 65584(a).

Responsible (along with the San Diego Association of Governments and the Santa Barbara County/Cities Area Planning Council) for preparing the ***Southern California Hazardous Waste Management Plan*** pursuant to California Health and Safety Code Section 25135.3.

VVWD
VICTOR VALLEY WATER DISTRICT

17185 Yuma St.
Victorville, CA
92392-5887
(760) 245-6424

R2

February 25, 2000

Mr. Dirk Reed
Project Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, CA 90054

RE: Response to Draft EIR/EIS for the Cadiz Groundwater Storage and Dry-Year Supply Program

Dear Mr. Reed:

The Victor Valley Water District supports the Cadiz Groundwater Storage and Dry-Year Supply Program.

The District is a proponent of groundwater storage projects that result in offsetting reliance on groundwater supplies. We are considering a similar project in the High Desert and have recently undertaken a pilot recharge study to empirically determine recharge feasibility in our area.

R2-1

Sincerely

Randy Hill, PE
General Manager

RH:jfm

C:\My Docs\Correspondence\Randy Hill\Cadiz.Doc

ONOMIC DEVELOPMENT AND
BLIC SERVICES GROUP

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COUNTY OF SAN BERNARDINO

JOHN D. GOSS
Assistant County Administrator

DEPARTMENTS
AGRICULTURE, WEIGHTS AND MEASURES
AIRPORTS
COMMUNITY AND CULTURAL RESOURCES
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REGISTRAR OF VOTERS
SPECIAL DISTRICTS
TRANSPORTATION/FLOOD CONTROL-SURVEYOR
GIMS
WASTE SYSTEM DIVISION

March 7, 2000

VIA FACSIMILE AND FEDERAL EXPRESS

Mr. Jack Safely
Metropolitan Water District of Southern California
Water Resources Management Group
P.O. Box 54153
Los Angeles, CA 90054-0153

R3

Mr. James Williams
U.S. Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714

Re: Comments on DEIR/DEIS for Cadiz Groundwater Storage and Dry-Year County of San Bernardino's Supply Program (SCH No. 99021039)

Dear Messrs. Safely and Williams:

This letter is submitted on behalf of the County of San Bernardino ("County"), and provides comments regarding the Draft Environmental Impact Report/Draft Environmental Impact Statement for the Cadiz Groundwater Storage and Dry-Year Supply Program ("DEIR/DEIS"). In particular, these comments primarily address the insufficiency of the DEIR/DEIS to support any decision by the Metropolitan Water District of Southern California ("MWD") and the Bureau of Land Management ("BLM" to proceed with the Cadiz Groundwater Storage and Dry-Year Supply Program ("Cadiz Project" or "Project"). The County appreciates this opportunity to comment on the DEIR/DEIS.

The County has several areas of concern with the proposed project. These were initially identified in the County's comment letter dated March 29, 1999 on the Notice of Preparation/Notice of Intent for the DEIR/DEIS. The County would again like to restate that it is particularly concerned with the proposed extraction of indigenous (native) groundwater from the aquifer that underlies the project site. The County's General Plan Goals and Policies seek to promote sound groundwater practices and protection of the groundwater resource through the application of principles of sustained safe yield and protection of groundwater quality. The issues addressed by the General Plan are at the very heart of the matter regarding this project. R3-

The County has devoted considerable time and effort in the review of the DEIR/DEIS for the Cadiz Project, including the use of outside technical experts to assist in the review. As you know, the County has also met with MWD and Cadiz Inc. representatives on several occasions. Based on a thorough review by both County staff and its technical experts, the County has concluded that the technical analysis used to support assertions in the DEIR/DEIS regarding groundwater recharge is fundamentally flawed. Because the issue of natural recharge provides the underpinnings of the part of the project related to extraction of native water, the County believes that the flawed technical analysis for this part of the project renders the document inadequate for compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). R3-

At the outset, it should be noted that County representatives and its technical consultants have been meeting with MWD representatives and its technical consultants in an effort to develop and agree upon an appropriate groundwater management and mitigation plan together with a Memorandum of Understanding (MOU), by and between the County and the MWD which would ensure that the groundwater management and mitigation measures are implemented. The County anticipates that the concerns and R3-

comments set forth in this letter will be appropriately addressed and resolved with the development of an agreed upon groundwater management and mitigation monitoring plan. If so, and other non-water mitigation measures are forthcoming, the County anticipates that its technical objections will be addressed. However, since these objectives have not yet been achieved, it is necessary to communicate the full scope of the County's concerns. R3-3

The technical analysis conducted by MWD relies on a methodology that the consulting firm of GeoScience used to validate groundwater recharge estimates. It overestimates natural recharge based on inappropriate methodology and errors in the generation of rainfall infiltration rates to groundwater. The resulting calculations by have overestimated natural recharge in the arid environment where the project is located. Separate, independent review by the U.S. Geological Survey, Desert Hydrology Study Team on behalf of the BLM and the Natural Park Service (NPS), concluded that natural recharge was overestimated by GeoScience by a range of five (5) to twenty-five (25) times greater than that which occurs in desert groundwater basins elsewhere in the Mojave Desert and in Nevada and Arizona. The County's technical expert team has independently reached similar conclusions. The erroneous assumption, of approximately 30,000 acre-feet per year of natural recharge used in this DEIR/DEIS, therefore fundamentally invalidates the stated conclusions of no impact. R3-4

The attached detailed comments point out the technical flaws in the water resources section, while other comments address various conclusionary statements, which are based on the invalid conclusions presented in the water resources section, and which appear throughout the document. In addition to the technical critique of the groundwater analysis, additional comments are offered on other sections of the document in an attempt to assist the MWD and the BLM in developing an DEIR/DEIS that could ultimately be revised to produce an environmental assessment that could meet the test of adequate R3-5

disclosure and analysis that is consistent with the statutes, regulations and case law for CEQA and NEPA.

The County's major concerns are summarized as follows:

1. The descriptions of the project, project objective, and the purpose and need for the Cadiz Project are often confusing, misleading, incomplete, and insufficient for informed decision-making, and therefore, are not adequate for the purposes of the CEQA or the NEPA.

2. The discussion of alternatives and the feasibility of alternatives is not adequate to comply with CEQA and NEPA.

3. The DEIR/DEIS fails to adequately analyze the full range of potential impacts of the Cadiz Project. In this regard, the DEIR/DEIS overstates the amount of recharge that will occur in the area of the Cadiz Project. As a result, the DEIR/DEIS underestimates the extent of the impacts on the environment of extraction of water from the Cadiz Project, and is inadequate for purposes of CEQA and NEPA. Further, the DEIR/DEIS fails to fully consider the growth inducing impacts of increasing the water supply.

4. The DEIR/DEIS fails to adequately explain the mitigation measures that are proposed to eliminate significant impacts on the environment. In this regard, the DEIR/DEIS makes reference to a Mitigation Monitoring Plan, which will be adopted in conjunction with the findings required under CEQA, at the time MWD's Board considers certification of the Final EIR. However, this Mitigation Monitoring Plan is not set forth in the DEIR/DEIS, although collaborative efforts have been made to develop one, and are

still on-going. At this time, however, the DEIR/DEIS is insufficient for informed decision-making and not adequate for purposes of CEQA and NEPA. R3-10

More detailed discussion of the foregoing concerns, plus additional comments, are attached hereto as Attachment 1. These comments are organized as general comments on each chapter of the DEIR/DEIS, followed by specific comments on each chapter. These comments are based, in part, upon a thorough review and analysis of the DEIR/DEIS performed by hydrology and hydrogeology experts retained by the County to review the DEIR/DEIS. (Copies of the comments prepared by these experts are attached hereto as Attachment 2, and are incorporated herein by reference.)

Although the County has identified some technical issues with the "storage" portion of the project, we believe that storage alone should be considered by MWD contingent upon its own economic feasibility analysis. The DEIR/DEIS leads the reader to conclude that, based on the evaluation of a storage only operational scenario, this alternative is not cost effective, although verbal indications to the contrary have been offered by MWD project managers. R3-11

The DEIR/DEIS has proven to be deficient as an informational document. The DEIR/DEIS fails to provide an accurate and adequate description of the Project. In addition, the DEIR/DEIS particularly fails to identify and discuss numerous significant impacts to groundwater resources, and fails to consider a reasonable range of alternatives designed to avoid or reduce the Project's significant environmental impacts. As demonstrated by the foregoing comments, significant new information should be added to the DEIR/DEIS before it complies with the requirements of CEQA and NEPA. As a result of these flaws to the R3-12 R3-13

DEIR/DEIS, the document should be withdrawn, amended, and then recirculated for further public review and comment in accordance with the requirements of CEQA and NEPA.[1]

The County appreciates your consideration of these comments.

Cordially yours,

JOHN GOSS
Assistant County Administrator

[1] As previously noted, the County anticipates that it will be able to reach an agreement (MOU) with the MWD which provides for the implementation of an appropriate groundwater management and mitigation plan. If an agreement is reached, the County anticipates that its objections will be addressed.

ATTACHMENT 1

I. SECTION 2.0: ASSESSMENT OF PROJECT NEED AND PURPOSE

R3-14

Under NEPA's requirements, the "purpose and need" section of an EIS shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." (40 C.F.R. §1502.13.) Courts have upheld the "purpose and need" section of an EIS where it is reasonable. (*See Muckleshoot Indian Tribe* v. *U.S. Forest Service* (9th Cir. 1999) 177 F.3d 800, 813; *Carmel-By-The-Sea* v. *U.S. Dept. of Transp.* (9th Cir. 1997) 123 F.3d 1142, 1155; *Citizens Against Burlington* v. *Busey* (1991) 938 F.2d 190, 196.) However, project goals may not be too narrowly defined. "The stated goal of a project necessarily dictates the range of reasonable" alternatives and an agency cannot define its objectives in unreasonably narrow terms." (*Carmel-By-The-Sea, supra,* at p.1155, *citing Citizens Against Burlington, supra,* at p. 196; *see also Simmons* v. *United States Army Corps. of Engineers* (7th Cir. 1997) 120 F.3d 664, 670 [vacating a dam permit where the Army Corps. of Engineers unreasonably defined the general need and purpose of the subject overall water supply project].)

Like *Simmons,* the DEIR/DEIS violates NEPA because the narrow description of the project purpose and need excludes viable alternatives. As the court did in *Simmons,* the County has "read between the lines" in determining how the purpose and need are defined in the DEIR/DEIS for the Project. On the one hand, the DEIR/DEIS states the project need is "to meet part of the need for supplemental dry-year supply in Metropolitan's six-county service area. . . ." (DEIR/DEIS, at p. ES-2.) On its face, this purpose is reasonable and laudable. However, later in the DEIR/DEIS, the general need is qualified by five "screening criteria" (DEIR/DEIS, at p. 3-11.) The effect of these criteria is to eliminate ten out of the thirteen potential alternatives, leaving only four alternatives -- all variations of the water storage and indigenous groundwater extraction project. (DEIR/DEIS, at p. 4-2.) As discussed below regarding the alternatives analysis, this subtle narrowing of the purpose and need of the project assured that some form of the indigenous groundwater extraction project would result from the screening criteria. This self-fulfilling prophecy is precisely the sort of mischief that the *Simmons* case disallowed

R3-1

because it violates NEPA and its implementing regulations, 40 C.F.R. §1502.13 and 1502.14.

II. SECTION 3.0: FORMULATION AND EVALUATION OF ALTERNATIVES

R3

A. General Comments

Under CEQA, an EIR must provide a selection and discussion of alternatives that foster informed decision-making and informed public participation. The alternative discussion must contain a range of reasonable alternatives that could feasibly attain the project's basic objectives. (Pub. Res. Code § 21100(d); CEQA Guidelines, § 15126(d).) CEQA requires that an EIR describe a reasonable range of alternatives to the proposed project, or to the location of the project. (CEQA Guidelines, §15126(d); *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 556.) "One of [an EIR's] major functions . . . is to ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official." (*Id., citing Wildlife Alive* v. *Chickering* (1976) 18 Cal.3d 190, 197; accord *Laurel Heights Improvement Assn.* v. *Regents of the Univ. of California* (1988) 47 Cal.3d 376, 400; *Bowman* v. *City of Petaluma* (1986) 185 Cal.App.3d 1065, 1083-1085.) The burden of identifying and evaluating alternatives rests with the agency, not the public. (*Laurel Heights,* 47 Cal.3d at 405-406.)

The alternative discussion must focus on alternatives that either eliminate adverse impacts or reduce them to insignificance, even if they would to some degree impede the project's objectives. (CEQA Guidelines, §15126(d)(3).) Thus, an EIR's alternatives should be developed to "avoid or substantially lessen" a project's significant environmental effects. (Pub. Resources Code, §21002; CEQA Guidelines, §15226(d)(5).)

An EIR's consideration of a reasonable range of alternatives to the project, or to the location of the project, must focus on alternatives which: (1) offer substantial environmental

advantages over the project proposal (Pub. Resources Code, §21002); and (2) may be feasibly accomplished in a successful manner" considering the economic, environmental, social and technological factors involved. (Pub. Resources Code, §21061.1; CEQA Guidelines, §15364.) The range of alternatives must be sufficient "to permit a reasonable choice of alternatives so far as environmental aspects are concerned." (*San Bernardino Valley Audubon Society* v. *County of San Bernardino* (1984) 155 Cal.App.3d 738, 750.)

R3-15

As demonstrated below, the DEIR/DEIS's discussion of alternatives fails to meet the requirement of a reasonable range of alternatives that lessen the Project's significant environmental impacts. The DEIR/DEIS's failure to include a reasonable range of alternatives limits informed decision-making and informed public participation. Further, the DEIR/DEIS fails to adequately explain how some of the evaluating criteria were measured and weighted to identify the preferred alternative.

R3-16

The presentation of alternatives to the proposed project is a confusing and convoluted explanation that results in what appears to be a pre-destined, "self-fulfilling prophecy" approach to identifying the Preferred Alternative to meet the requirements of NEPA. Section 3.9, "Selection of the Preferred Alternative," in fact, identifies what appears to be merely a preferred route option, "the Eastern Alternative" (at page 3-40) rather than explicitly identifying what is in fact, the combined Cadiz Storage and Transfer Project as the Dry-Year Supply Preferred Project Alternative. Section 3 lays out a confusing process of alternative formulation and evaluation that includes three "steps," two "phases," a sub-process of "screening-level alternatives" and evaluation criteria with quantitative weights assigned. The "phased" analysis was further complicated with the introduction of nine possible operational scenarios which consider varying combinations of combined storage and transfer. Prior to completing a full evaluation of the alternatives "carried forward for detailed analysis," the DEIR/DEIS mysteriously combines the only two individual project-level alternatives that are presented in a forthright manner. The third project-level alternative that was carried forward

R3-17

R3-18

for detailed evaluation was, in fact, dismissed from detailed evaluation. The Storage Project and the Transfer Project were inexplicably merged into a single project alternative without the benefit of, ostensibly, the more rigorous evaluation that was applied to the pipeline routine options, i.e., the Eastern Alternative, the Western Alternative and the Combination Alternative.

This section of the DEIR/DEIS presents an elaborate process that is fatally flawed because it relies on the pre-determined conclusion that there is approximately 30,000 acre-feet per year of natural recharge to the basin. The Storage and Transfer Alternatives were combined under the assumption that the analysis of project impact to groundwater resources was not significant and based on the unknown economic criteria that MWD used to evaluate the operational scenarios (at page 3-19). The action combining these two alternatives into one functional alternative, thereby eliminating a detailed evaluation of each of the alternatives, is not explained and appears arbitrary. Each of the two alternatives, the Storage Project and the Transfer Project, should have been evaluated as separate stand alone alternatives – just as was implied in the text contained in Section 3.5.4 (at page 3-16). This constitutes a substantial deficiency in the DEIR/DEIS.

The assessment presented in this section is incomplete and deficient for at least two reasons: first, the formulation of alternatives includes an irrational incorporation of an offsite alternative (Hayfield), which is coincidentally the only viable offsite alternative, that has already undergone separate CEQA review and is currently being implemented; and second, the use of an evaluation process that appears to be based on criteria that include a fatal and flawed environmental determinate of project feasibility, specifically hydrologic impacts on the natural groundwater regime.

The DEIR/DEIS incorrectly discusses the Hayfield project in an attempt to meet the regulatory requirement of alternatives formulation. The implication is that Hayfield can substitute for the proposed project to reduce project impacts when it is presented in Section 3.4 at page 3-5. However, an inexplicable contradiction appears further in the

document at page 3-17 (Section 3.5.4, "Alternatives Carried Forward for Detailed Analysis"), the DEIR/DEIS indicates that "The environmental effects of the Hayfield Project have been analyzed in a separate document and the Hayfield Project is currently being implemented." The DEIR/DEIS states (at page 3-16) that "three alternatives were carried forward for project-level formulation and evaluation." This is patently misleading in that the Hayfield Project is immediately dismissed on the following page as being assessed in a separate document and presently being implemented. The approach used in the DEIR/DEIS which addresses the Hayfield Project as both a project alternative and as a project that is considered as closely related, past, present and reasonably foreseeable future projects defies reason. The Hayfield Project appears to be nothing more than a "strawman alternative" that is either deceptive or meaningless or both. What is most disturbing about the treatment of the Hayfield Project is that it is the only offsite alternative that was presented by MWD as having any merit. R3-22

The result of this flawed analysis is that only two groundwater supply alternatives received detailed evaluation, specifically, the Cadiz Groundwater Storage Project and the Cadiz Valley Dry-Year Transfer Project.

B. Specific Comments

Section 3.1

R3-23

Initially, MWD considered proposals received by MWD from various public agencies to develop the alternatives available for meeting MWD's objectives. As discussed above, the burden of identifying alternatives rests with the agency, not the public. (*Laurel Heights*, 47 Cal.3d at 405-406.) Therefore, MWD has the responsibility to identify other alternative methods of meeting its water supply objectives. Because

MWD failed to develop its own alternative methods of meeting its water supply objectives, the DEIR/DEIS's consideration of alternatives is inadequate and incomplete.

Section 3.3

In the initial consideration of project objectives, MWD failed to identify as an objective MWD's goals of providing a water supply through the year 2020. (DEIR/DEIS at p. ES-1; DEIR/DEIS at p. 1-5; DEIR/DEIS at p. 3-2.) In this regard, the DEIR/DEIS fails to consider whether the alternatives will meet this goal and MWD's consideration of the initial potential alternatives is inadequate.

Section 3.7.1

The DEIR/DEIS states that only one site is feasible for the location of spreading basins and wellfield. In this regard, the DEIR/DEIS fails to adequately consider alternative locations for the spreading basins and wellfield, and the consideration of alternatives is, therefore, inadequate. MWD independently determined the most feasible site for the spreading basins and wellfield, without fully disclosing to the public what the alternative sites are and without full analysis in the DEIR/DEIS of the impacts of using alternative sites. Even though the DEIR/DEIS identifies three potential sites for the spreading basins and wellfield, the DEIR/DEIS concludes that the Fenner Valley is the best location for the spreading basins and wellfield without including a complete analysis of desirability or the environmental impacts of this site. The public, therefore, is unable to evaluate whether the Fenner Valley is indeed the most desirable location for the spreading basins and wellfield. For example, the public is not informed of the relative recharge rates of various spreading basin locations, or of the geologic and hydrologic characteristics of alternative spreading basin locations. Because the DEIR/DEIS fails to analyze alternative locations of the spreading basins and wellfield, it contains an

R3-25

inadequate analysis of the alternative sites available for the spreading basins and wellfield.

Section 3.7.2

R3-26

The DEIR/DEIS also concludes, without sufficient analysis, that only two pumping station sites are desirable. As discussed above, regarding section 3.7.1, this determination that only two pumping sites are feasible is made without a complete analysis, and the public is unable to determine if these two locations are in fact the only feasible alternatives. The discussion of alternative pumping stations is incomplete to allow the public to analyze the impacts of the various alternatives.

Section 3.7.5

R3-27

This section discusses the detailed evaluation of project-level alternatives by identifying 27 parameters used for quantitative evaluation of the practicability and environmental/social impacts of each alternative. However, several of these 27 parameters are not adequately explained, and fail to inform the public of how the parameter was measured to assess impacts.

The DEIR/DEIS's description of how particular parameters of the project level alternatives were measured is inadequate. The DEIR/DEIS fails to explain the methods used to evaluate these parameters, and the public, therefore, cannot evaluate whether these parameters were adequately considered, and whether the impacts of each alternative on these parameters was properly analyzed.

Section 3.8.3

See discussion below regarding Section 4.8.

III. SECTION 4.0: DESCRIPTION OF PROJECT ALTERNATIVES

A. General Comments

R3-

The discussion of the No Action Alternative is inadequate for purposes of CEQA. The No Action Alternative provides the environmental baseline from which to evaluate the Project and alternatives. The No Project Alternative must include two components. First, it must include an analysis of existing environmental conditions. (CEQA Guidelines, § 15126(d)(4).) CEQA requires comparison with pre-project conditions to provide a uniform baseline for assessing the project's impacts. (*County of Inyo v. City of Los Angeles* (1981) 124 Cal.App.3d 1, 9.) Second, the No Action Alternative must include a discussion of what would reasonably be expected to occur under existing plans in the foreseeable future if the project is not approved. (CEQA Guidelines, § 15126(d)(4).) The DEIR/DEIS's discussion of the No Action Alternative is inadequate because it does not fully discuss existing environmental conditions, and is not described in sufficient detail.

B. Specific Comments

Sections 4.2.3, 4.3.3, and 4.4.3

R3-

With regard to the description of construction of the water conveyance facilities for each alternative, the DEIR/DEIS states that "general assumptions were made about the soil/rock material type, extent of groundwater infiltration and special facilities." (DEIR/DEIS at pp. 4-7, 4-14, 4-21.) However, the DEIR/DEIS does not disclose what the general assumptions are. Therefore, the public is not adequately informed of the

nature and extent of the impact of construction of the water conveyance facilities on the surrounding environment. The DEIR/DEIS does not fully explain the assumptions made when evaluating construction of the water conveyance facilities, and is therefore inadequate. R3-29

Section 4.6.1

See discussion above regarding Section 3.7.1.

Section 4.6.2

See discussion above regarding Section 3.7.1.

Section 4.8

CEQA requires that the No Action Alternative include an analysis of existing environmental conditions. (CEQA Guidelines, § 15126(d)(4).) In this regard, the No Action Alternative does not discuss existing environmental conditions, but instead only discusses what may occur if the Project is not approved. The discussion of the No Action Alternative is, therefore, inadequate for purposes of CEQA. R3-30

IV. SECTION 5.0: AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION

Section 5.1 R3-31

The DEIR/DEIS is deficient for its failure to disclose and evaluate groundwater withdrawals and potential significant groundwater declines associated with the ultimate

buildout of 9,600 acres of agricultural designated land owned by Cadiz Inc. The DEIR/DEIS acknowledges that the County certified an EIR in 1993 and approved a project [a General Plan Amendment(sic).] that could allow up to 9,600 acres of agricultural development in the Cadiz Valley. The DEIR/DEIS is inadequate; however, due to its failure to identify and disclose the groundwater consumption associated with full implementation of the agricultural project. For example, the DEIR/DEIS ignores the basic project impacts of prolonged groundwater withdrawals to support the irrigation of agricultural crops. The 1993 certified EIR also disclosed that a wide range of natural recharge estimates exist for the underlying aquifer. The lower end of the range was 1,500 acre-feet per year (AYF) of recharge compared to the 20,000 (AYF) asserted by Cadiz Inc. The current recharge reported in the DEIR/DEIS, 30,000 AYF is 50% more than that asserted by Cadiz in 1993. The County's 1993 EIR found that significant impacts to groundwater could occur at full agricultural production which would consume an estimated 40,000 AFY. The lack of disclosure and analysis of the combination of agricultural withdrawals and MWD withdrawals renders the conclusion at page 5-6 and 5-7 regarding impacts to agriculture inaccurate.

R3

The DEIR/DEIS at page 5-6 discloses only the current level of groundwater used by Cadiz Inc. and ignores the future needs of the agricultural operation as additional land is cultivated and irrigated. The DEIR/DEIS is misleading when it states that the withdrawal of indigenous groundwater for use by MWD is not anticipated to have a significant adverse impact on the availability of water for *existing* agricultural operations but then ignores the level of operation contemplated in the 1993 DEIR. The proposed extraction of indigenous groundwater for the Transfer Project could compound the effects of the agricultural operation thereby rendering future agriculture infeasible. The potential for significant overdraft of the groundwater basin by the combination of extractions of indigenous groundwater by both operations is a flaw in the analysis of potential impacts on agriculture.

R3

Section 5.2

R3-33

Land Use, Planning and Policies. The County disagrees with the conclusion that there are no impacts to land use, planning and policies with regard to agricultural land uses in the Cadiz Valley. The discussion above demonstrates the failure to consider and analyze the impacts to groundwater resources from the Transfer Project, when combined with those identified for the agricultural development. Based on this lack of impact assessment and the questionable natural groundwater recharge rates estimated in the groundwater modeling performed by GeoScience, the proposed MWD project clearly causes potential significant impacts that are contrary to the County's General Plan "Natural Resources (Water) Management Policies" referenced by the DEIR/DEIS at page 5-15. The aforementioned impacts are inconsistent with the County's goals and policy to "Provide a balanced hydrological system in terms of withdrawal and replenishment of water from groundwater basins" (cited at page 5-15). The project will exceed the Threshold of Significance for the threshold of "Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to General Plan, Specific Plan or Zoning Ordinance) adopted for the purpose of avoiding or mitigating an environmental effect" (ibid).

R3-34

R3-35

R3-36

The DEIR/DEIS also fails to acknowledge the indirect impacts to agricultural land uses caused by the substantial overdraft of native groundwater. The secondary effect of significant overdraft could either reduce water supplies for irrigation or it could cause a reduction of cultivated lands that would otherwise occur but for the MWD Transfer Project. The deficient impact analysis and inadequately substantiated conclusions regarding impacts to land use, planning and policies, renders the DEIR/DEIS inadequate.

Section 5.4

R3-3

Topography, Geology, Seismicity and Soils: See Comments from Dr. John Foster, Professor of Geology, Cal State Fullerton, and Mr. Timothy J. Durbin, Consultants to San Bernardino County in the "Comments on Draft EIR/EIS Cadiz Groundwater Storage Project Cadiz and Fenner Valleys, San Bernardino County, California", February 21, 2000, which is attached hereto and incorporated herein by reference.

Section 5.5

A. General Comments

R3-

Water Resources. The DEIR/DEIS is inadequate because it over-estimates the rate of natural groundwater recharge, which results in an inaccurate analysis of the impacts of the Project on water resources. As a result of this over-estimation, the DEIR/DEIS fails to disclose that the projected export of the indigenous groundwater will exceed the natural recharge of the basin, and will result in declining groundwater levels.

In addition, the DEIR/DEIS's discussion of mitigation measures to reduce the environmental impacts to a level of insignificance is inadequate and incomplete.

R3-

B. Specific Comments – In addition to the comments found below, see "Comments on Draft EIR/EIS Cadiz Groundwater Storage Project Cadiz and Fenner Valleys, San Bernardino County, California", February 21, 2000, prepared by Dr. John Foster, Professor of Geology, Cal State Fullerton, and Mr. Timothy J. Durbin, consultants to San Bernardino County which is attached hereto and incorporated herein by reference.

R3-

Section 5.5.1

R3-41

The DEIR/DEIS states that groundwater recharge occurs from both surface runoff and percolation of precipitation. (DEIR/DEIS at p. 5-80.) However, the U.S. Geological Survey in the desert areas of Nevada has studied the recharge from the direct infiltration of precipitation extensively. Applying the method developed for estimating the proportion of precipitation that eventually becomes groundwater recharge to the Cadiz Project, the groundwater basin yields a natural groundwater recharge of a range of 1,000 - 10,000 AF, or an average of 5,000 acre-feet per year. This is considerably less than the value assumed in the DEIR/DEIS.

The Project proposes to export 2 million acre-feet of indigenous groundwater. (DEIR/DEIS at p. ES-5.) Assuming this 2 million acre-feet will be exported over the 50 year life of the Project, this is equivalent to an average annual export of 40,000 acre-feet per year over the Project life. If the natural recharge is 5,000 acre-feet per year, as discussed above, the project will export 1.75 million acre-feet of water in excess of the natural recharge, which will result in significant groundwater level declines. Due to the inaccurate estimate of the natural groundwater recharge, the DEIR/DEIS fails to accurately analyze the impacts of the Project on groundwater levels.

Section 5.5.3

R3-42

The groundwater model developed by MWD is inadequate and results in an improper assessment of the groundwater discharge to Bristol and Cadiz dry lakes. The natural recharge of the groundwater basin discharges as groundwater evaporation from the dry lakebed surfaces. However, this process is dependent on the groundwater levels beneath the dry lakebed surface. Under current conditions, the depth to the groundwater

table beneath Bristol and Cadiz dry lakes would be such that the cumulative lakebed evaporation would equal 5,000 acre-feet per year, i.e. the discharge would equal the natural recharge. The Project's groundwater exports would cause declines in the groundwater levels and gradually reduce the lakebed evaporation until it ceases. Cessation of lakebed evaporation occurs when the depth to the groundwater level is more than 10 feet below the lakebed surface. However, in the development of the groundwater model, the cessation of lakebed evaporation was assumed to occur at a depth of 100 feet. The model, therefore, is inadequate to evaluate the impacts of the Project on water resources. R3-

Section 5.5.4

The discussion of impacts is inadequate for purposes of CEQA and NEPA. In this regard, the DEIR/DEIS states that the Project may impact various environmental resources, yet fails to fully evaluate these impacts. For example, the DEIR/DEIS states that the Project has the potential to impact the nearby community of Chambless and that such impacts are discussed later in the document. (DEIR/DEIS at p. 5.91.) The DEIR/DEIS, however, fails to describe those impacts in detail, and does not explain how the mitigation measures will affect those impacts. R3

The DEIR/DEIS also states that potential changes in groundwater quality may occur as a result of mixing Colorado River water with indigenous groundwater. (DEIR/DEIS at p. 5-94.) The DEIR/DEIS states that if undesirable levels of perchlorate, for example, are detected in the groundwater, the mitigation measures will be implemented, and therefore the impacts are not significant. (DEIR/DEIS at p.5-95.) However, implementing mitigation measures after undesirable levels of constituents are found does not reduce the impacts of the project to a level of insignificance. The proposed mitigation measures address the action that will be taken in the event a R3

significant environmental impact occurs, but do not render the impacts of the Project insignificant. R3-44

Section 5.7

Transportation: See memo from County Transportation/Flood Control Department attached hereto and incorporated herein by reference. R3-45

Section 5.8

Biological Rersources: See memo from the County Museum, Biological Sciences Section attached hereto and incorporated herein by reference. R3-46

Section 5.15

Cultural Resources: The Cultural Resources Section of the County Museum has reviewed this section of the DEIR/DEIS and concurs with the analysis, conclusions and mitigation. R3-47

Section 5.16

Paleontological Resources: See Comments from the County Museum, Geologic Sciences Section attached hereto and incorporated herein by reference. R3-48

V. SECTION 6.0: GROWTH INDUCEMENT IMPACTS R3-49

A. General Comments

The DEIR/DEIS is defective for its inadequate treatment of growth-inducing impacts. An EIR must include a separate discussion of the growth-inducing impacts of the project on the environment. (CEQA guidelines §15126(d).) Specifically, an EIR must:

> "Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment." (CEQA Guidelines §15126.2(d).)

As required by the Guidelines, the DEIR/DEIS does contain a separate section entitled "Growth Inducement Impacts" (Section 6.0). However, that section contains almost no substantive discussion of the growth-inducing impacts of the Project. Rather, Section 6.0 is substantially devoted to a description of various forecasts of area growth and development that had been made prior to the inception of the Project. The entire portion of the discussion that even pertains to the growth-inducing impacts of the Project, is comprised of conclusionary statements to the effect that the Project can have no growth inducing impact. This conclusion is patently false, both as a matter of fact and law. As a result, the DEIR/DEIS is totally deficient and fails to comply with both CEQA and NEPA.

R2

R3

B. Specific Comments

Section 6.2

The DEIR/DEIS's analysis of the growth-inducing impacts of the Project is essentially comprised of: (1) a description of the background (i.e., pre-Project) growth/development forecasts of various public agencies (such as SCAG and SANBAG); and (2) a denial of the possibility that the Project could have growth-inducing effects. The DEIR/DEIS's treatment can be summarized by the following excerpts:

> "The growth projections [of SCAG and SANBAG] for Southern California anticipate and take into account the predictive adverse impacts of growth. In short, state and regional planning agencies project growth to occur despite shortfalls in water supply . . . SCAG and SANDAG [sic] implicitly recognize that the availability of infrastructure is not a primary factor that induces growth." (DEIR/DEIS at p.6-2.)

R3-50

> "[A]dvanced planning to meet projected needs of a growing population does not foster growth; its purpose is to ensure that existing levels of public service are not degraded as a result of growth." (Id.) "The Cadiz-Groundwater Storage and Dry-Year Supply Program responds to [SCAG and SANBAG] projections of growth and the anticipated demand for dry-year water supply . . ." (Id.)

> "The Cadiz Project would neither induce growth nor remove a constraint shown to limit growth." (DEIR/DEIS at p. 6-5.)

As these excerpts exemplify, the DEIR/DEIS treats the issue of growth-inducing impacts with a categorical denial of the general possibility of such impacts.

Sections 6.2-6.4

R3-51

Implicit to the above-referenced analysis is the further erroneous assumption that, as part of their growth forecasting activities, SCAG and/or SANBAG conducted some environmental review with respect to the subject forecasted growth/development, and that either of them ever exercised some kind of discretionary authority over it. The approach adopted by the DEIR/DEIS is contrary to law. The courts have squarely rejected the idea that a substantial increase in consumptive water supply is not an inducement to growth. "Making 17,000 a/yr. of water available for consumptive purposes removes a major barrier to growth and can virtually ensure development." (*County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, *citing City of Antioch v. City Council* (1986) 187 Cal.App.3d 1325, 1337.) The Project will make approximately 20,000 a/yr. available for consumptive purposes. Thus, whereas SCAG and SANBAG may have predicted continued regional growth and development, the Project "virtually ensures" it. However, despite this effect, if the Project is approved, no one will have analyzed the environmental impacts of the growth that it will assuredly induce.

The court in *County of Amador* considered and condemned a similarly defective process. There, the lead agency had approved a water project that was designed to meet an increased population, as was projected in a draft general plan. The court held:

> "Under the present scenario, no entity has contemplated the interrelationship of growth and water sources. Making 17,000 a/yr. of water available for consumptive purposes removes a major barrier to growth and can virtually ensure development. [Citation omitted.] By predicating a project on a draft general plan, without the benefit of a final expression of County policy, there is no guarantee that the inextricably linked issues of water supply and population growth will ever receive the appropriate environmental review. The County would have no reason to analyze what has become a nonexistent issue. Where, as here, there is a significant possibility, if not a probability, that there will be no analysis or

reasoned consideration of the adoption of a general plan that restricts growth to a level less than that which will require an additional 17,000 a/yr., which restrictions would require less water and perhaps effect a different impact on the environment, the CEQA process has been abused."
(*County of Amador v. El Dorado County Water Agency*, 76 Cal.App.4th 931.)

R3-51

As in *County of Amador,* CEQA and NEPA have been violated here because neither the MWD nor anyone else will have considered the environmental impacts associated with the growth and development that the availability of substantial supplies of new water makes inevitable. As a result, the DEIR/DEIS is legally defective and should not be certified.

VI. SECTION 7: CUMULATIVE IMPACTS

R3-52

The Cadiz Groundwater Project DEIR/DEIS is defective for its inadequate treatment of cumulative impacts. An EIR must include a separate discussion of the cumulative impacts of the project on the environment. CEQA guidelines §151 30

Unless cumulative impacts are analyzed, agencies tend to commit resources to a course of action before understanding its long-term impacts. Thus, a proper cumulative impacts analysis must be prepared "before a project gains irreversible momentum." *(City of Antioch v. City Council* (1986) 187 Cal.App.3.d 1325, 1333, citing *Bozung v. Local Agency Formation Commission* (1974) 13 Cal.3d 263,282.

As required by the Guidelines, the DEIR/DEIS does contain a separate section entitled "Cumulative Impacts" (Section 7.0). However, Section 7 completely misses the mark with regards to a meaningful assessment from a local context (the Cadiz-Fenner Valley). Instead of addressing the planned extraction of approximately 40,000 acre-feet

per year of local groundwater at full operational buildout by the approved agricultural operation of Cadiz Inc., the document erroneously states at pages 7-2 that "there are no locally planned, approved or reasonably anticipated land development projects in the vicinity of the Cadiz [Groundwater Storage, sic.] Project."" The fact that Cadiz Inc. is an acknowledged partner in the Cadiz Groundwater Storage Project, and that the 1993 EIR for the Cadiz Agricultural project was referenced in Section 5.2, "Land Use, Planning and Policies" at page 5-10, points to an obvious failing in this section to disclose the cumulative effect of the MWD Cadiz Groundwater Project when combined with the Cadiz Inc. agricultural operation. The failure to acknowledge the large amount of groundwater required to support the level of agricultural production addressed in the certified 1993 EIR is erroneous and appears to be an attempt to minimize the potential cumulative impacts on indigenous groundwater. The failure to disclose the potential extraction of native groundwater for agricultural purposes is further exacerbated by the substantial overestimates of natural recharge to the Cadiz Groundwater Basin. The conclusionary statements in Section 7.5.5, "Water Resources" asserting that the Cadiz Project would not cause any significant cumulative hydrologic impacts fails to recognize the potential impacts of the Cadiz Inc. agricultural operation, and are fundamentally flawed based on inaccurate methodology used in the hydrologic analysis reported in the technical appendices. These critical omissions result in a failure to analyze this potentially significant cumulative impact.

R3-

Similar to the section on growth inducement, the discussion in Section 7 is a superficial treatment of the cumulative impacts of the project from a regional context.. The DEIR/DEIS inappropriately limits the regional context to the "region of the Cadiz Project" (at page 7-1). The DEIR/DEIS states that "For purposes of cumulative analysis then, Metropolitan's Hayfield Groundwater Storage Project was considered the only other project in the region." (ibid) While we agree that the Hayfield project should be considered along with the Cadiz Project for assessment of its potential cumulative

impacts, the realm of cumulative issues goes far beyond the general area of the Cadiz-Fenner Valleys that the DEIR/DEIS has arbitrarily selected for analysis. The regional context, on the contrary, should include San Bernardino, Riverside and Imperial Counties, if not all of the Southern California area where MWD is implementing several regionally significant projects. The Inland Feeder Pipeline and the Eastside Reservoir are specific examples of regionally significant projects in San Bernardino and Riverside Counties that this DEIR/DEIS fails to acknowledge and consider in its cumulative impact analysis. R3-53

ATTACHMENT 2

"Comments on Draft EIR/EIS Cadiz Groundwater Storage Project Cadiz and Fenner Valleys, San Bernardino County, California", Prepared for: County of San Bernardino, February 21, 2000, Prepared by:Timothy J. Durbin, Timothy J. Durbin, Inc., and Dr. John Foster, Department of Geological Sciences, California State University, Fullerton R3

Interoffice Memo dated March 7, 2000 from Patrick J. Mead, P. E., Assistant Director - Planning, Transportation/Flood Control Department. R3

Interoffice Memo dated February 22, 2000 from Robert L. McKernan, Senior Curator, Section of Biological Sciences, San Bernardino County Museum. R3

Interoffice Memo dated February 22, 2000 from Kathleen Springer, Senior Curator, Section of Geological Sciences, San Bernardino County Museum. R3

COMMENTS ON DRAFT EIR/EIS
CADIZ GROUNDWATER STORAGE PROJECT
CADIZ AND FENNER VALLEYS, SAN BERNARDINO COUNTY
CALIFORNIA

Prepared for:
County of San Bernardino
February 21, 2000

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COMMENTS ON DRAFT EIR/EIS
CADIZ GROUNDWATER STORAGE PROJECT
CADIZ AND FENNER VALLEYS, SAN BERNARDINO COUNTY
CALIFORNIA

Description of Project and the Environment

The Cadiz Valley Groundwater Storage Project is proposed to store water imported from the Colorado River through the Colorado Aqueduct. The imported water would be stored within the groundwater system that underlies Cadiz Valley. Water would be stored during periods of excess supply from the Colorado River. Subsequently, the stored groundwater would be extracted during periods of deficient supply from the Colorado River. Additionally, the project proposes to extract and export the natural groundwater supply of Cadiz Valley and adjacent Fenner Valley (Figure 1).

The Project facilities consist of recharge ponds, a pipeline, and wells. Recharge ponds would be used to infiltrate the water imported from the Colorado River. Water will be discharged into the ponds, where it will infiltrate into the pond beds and percolate downward to the groundwater table. These facilities will be designed to recharge as much as 145,000 acre-feet per year. Likewise, wells will be designed to extract as much as 145,000 acre-feet per year. The Project is proposed to extract groundwater in excess of the stored imported water. Over a 50-year period, the Project may extract 2 million acre-feet of groundwater in excess of the stored water. The excess withdrawal will be accommodated by more years of extraction and fewer years of recharging during the 50-year period.

The groundwater system that underlies Cadiz and Fenner Valleys occurs within alluvial deposits that have been derived from the erosion of the mountain ranges that surround the valleys. The Bullion, Bristol, Granite, Providence, New York, Piute, Old Woman, Iron, Coxcomb, and Sheep Hole Mountains are the principal ranges. These ranges form a topographically closed watershed that encompasses Cadiz and Fenner Valleys. The streamflow that is generated within the watershed flows not further than to either Bristol or Cadiz Lakes, which are dry lakes that occupy topographically low areas of the watershed.

The geologic formations that occur within the Cadiz-Fenner Valley watershed consist of consolidated rocks and alluvial deposits. The consolidated rocks form the mountain ranges, and underlie the valley-floor areas at depth. The alluvial deposits cover the valley-floor areas. The consolidated rocks include igneous, metamorphic, volcanic, and cemented sedimentary rocks. The alluvial deposits are unconsolidated, and include alluvial-fan and lake-bed deposits. The alluvial deposits are at least 1,500 feet in thickness, but locally may be considerably greater in thickness.

The alluvial deposits are the principal water-bearing formations within Cadiz and Fenner Valleys, and the Cadiz Valley Groundwater Storage Project proposes to store water in these deposits. Wells completed within the alluvial deposits yield 1,500 gallons

per minute or more. However, the consolidated rocks practically are non-water-bearing formations, and wells completed in consolidated rocks generally have very low yields.

The source of groundwater within the alluvial deposits is the precipitation on the higher mountain areas within the watershed. Streamflow is generated from precipitation on mountain areas, and to a lesser degree on valley-floor areas. As the streamflow moves down a channel, part of the streamflow infiltrates into the streambed. Of the infiltrated streamflow, part evaporates from the streambed surface, but the remainder percolates downward to the groundwater table. While essentially no recharge occurs from the direct infiltration of precipitation on the valley-floor areas, some recharge does occur from the direct infiltration of precipitation on mountain areas. Recharge occurs in wet years when the infiltration exceeds the capacity of the native vegetation to consume the infiltrated water. Such recharge occurs in mountain areas because the precipitation in wet years is sufficiently high. Correspondingly, measurable recharge does not occur in valley-floor areas because the precipitation even in wet years is not sufficiently high. The average annual precipitation in the higher mountain areas ranges from 8 to 12 inches, but the average annual precipitation over most of the valley-floor area is less that 6 inches.

In the absence of groundwater development, the natural recharge is balanced by discharge from the groundwater system. For the pre-development condition of the Cadiz-Fenner Valley groundwater system, the natural recharge discharges as evaporation from Cadiz and Bristol Lakes. The groundwater table beneath the lakes is near the lake-bed surface, and groundwater is discharged by evaporation from the lake-bed surface. Through capillarity, water rises from the groundwater-water table to the lake-bed surface. Depending on the texture of the lake-bed sediments, water can rise from several feet to as much as 10 feet above the groundwater table. Groundwater can rise higher in fine-grained sediments than in less fine-grained sediments. For a particular sediment and climatic condition, the evaporation rate at the lake-bed surface increases as the depth to the groundwater table decreases.

The balancing between natural recharge and discharge is accommodated by the depth to the groundwater table below the dry lakes. The recharge fills the groundwater system until groundwater evaporation occurs from the lake-bed surface. The groundwater table positions itself such that the evaporation from the lake-bed surface equals the natural recharge to the groundwater system. This is a long-term equilibrium state in which steady groundwater flows from the recharge areas to the discharge areas. Thus the long-term average groundwater discharge equals the average recharge. Additionally, long-term groundwater levels do not change, except for short-term fluctuations related to corresponding climatic variations.

With groundwater development, the pre-development equilibrium is disturbed. When groundwater is extracted and exported or consumed locally, the long-term effect is to reduce the natural groundwater discharge by evaporation from the Bristol and Cadiz Lake dry-bed surfaces. If the exportation or local consumption is less than the natural recharge to the groundwater system, the natural discharge will be reduced by the amount of the exportation or local consumption. Correspondingly, groundwater levels will be

lower than they were for the pre-development condition. However, after a transitional period measured in decades, a new equilibrium will be established. If the exportation or local consumption is greater than the natural recharge, the natural discharge will cease entirely. Additionally, groundwater levels will decline continually until the extraction ceases.

R3-58

Given the principals described above, groundwater pumping from the Cadiz-Fenner Valley groundwater system, will have two environmental impacts. Firstly, groundwater levels will decline. Secondly, the natural groundwater discharge to the Bristol and Cadiz lake-bed surfaces will be reduced or eliminated. The consequences of these impacts depend on the location and magnitude of the extractions. If the extractions are large with respect to the natural groundwater recharge, the impacts will be widespread and large. The effect of reducing or eliminating the natural discharge from the lake-bed surfaces will be dried lake-bed sediments. The most likely consequence will be the generation of dust from the dried lake bed. The possible effect of widespread groundwater-level declines will be reduced spring discharges. Moyle (1967), Freiwald (1984), and Kohler (1983) identified a number of springs within the Cadiz-Fenner Valley watershed, which potentially could be impacted by groundwater extractions.

The Draft EIR/EIS does not address these issues. Nevertheless, they are critical issues with respect to assessing the environmental impacts of the Cadiz Valley Groundwater Storage Project. Until these issues are addressed, the draft assessment is substantially incomplete.

R3-59

Natural Groundwater Recharge is Grossly Overestimated

The Draft EIR/EIS describes estimates of natural groundwater recharge that were prepared by GeoScience (1999). The estimates of the long-term average annual natural recharge have a range of about 20,000 to 70,000 acre-feet. However, in the development of a groundwater model, and the subsequent use of the model to evaluate the Project groundwater impacts, an average annual recharge of 50,000 acre-feet per year was used. In other words, the groundwater impacts of the Project are evaluated assuming that 50,000 acre-feet is the actual natural recharge. Because the assessment of impacts depends on the Project exports of native groundwater relative to the natural groundwater recharge, the recharge value used in the analysis of impacts is a critical assumption.

However, the recharge amount of 50,000 acre-fee per year is implausibly high. The true average annual natural groundwater recharge to the Cadiz-Fenner Valley groundwater system likely is in the range of 1,000 to 10,000 acre-feet, which represents the plausible range of possible actual recharge values. The expected average annual recharge is 5,000 acre-feet. The natural recharge used in the Draft EIR/EIS is 50 times larger than the lower end of the plausible range, it is 5 times the upper end, and it is 10 times the expected recharge.

My estimate of the actual recharge is based on the application of the Maxey-Eakin method for estimating natural groundwater recharge to desert groundwater basins. This is

a method that was developed collaboratively by the U. S. Geological Survey and the University of Nevada Desert Research Institute (Maxey and Eakin, 1949; and Maxey and Eakin, 1951). The method involves calculating the average annual recharge from the average annual precipitation on the mountain ranges enclosing the groundwater system. The precipitation on a typical mountain range varies with elevation. Precipitation is higher at a higher elevation than at a lower elevation. Correspondingly, contours of average annual precipitation over a mountain range tend to parallel the contours of elevation.

Based on the contours of average annual precipitation, the Maxey-Eakin method involves two steps. Firstly, the average annual volume of precipitation on the area bounded by particular contours is computed. For example, if the area between the contours representing 8 and 10 inches of precipitation is 10,000 acres, the volume of precipitation would be 7,500 acre feet, which is obtained by multiplying the acreage by the middle precipitation between the two contours. The middle precipitation is 9 inches or 0.75 feet. Secondly, the volume of precipitation is multiplied by the percentage of the average annual precipitation that is not consumed by vegetation or channel-bed evaporation. In the Maxey-Eakin method, the percentage is 3 percent. Correspondingly, the average annual natural groundwater recharge for the example is 225 acre-feet.

Different percentages are applied to different precipitation ranges. The percentage is higher for a higher average annual precipitation. The particular percentages for the Maxey-Eakin method are listed in Table 1. For an average annual precipitation less than 8 inches, the percentage is zero, which indicates that essentially no groundwater recharge is produced from an area with such precipitation. For an average annual precipitation greater than 34 inches, the factor is 25 percent.

The percentages were developed by Maxey and Eakin (1949; and 1951) and Eakin and others (1951), but they have been refined by others over a 50-year period. The latest refinements have be made by Katzer and Donavan (2000) and Nichols (2000). The original and revised percentages were developed by calibrating the Maxey-Eakin method to groundwater basins for which the natural discharge and precipitation had been estimated with acceptable accuracy. With that information, the calibration process was to determine the percentages for different precipitation ranges such that the resulting Maxey-Eakin recharge best fit the estimated natural discharge. Over the years, the refinements to the Maxey-Eakin method have occurred, as better estimates of natural discharge have been made (Nichols, 1993; Nichols, 1994; Nichols, 2000; and Katzer and Donavan, 2000). A review of the reliability of the Maxey-Eakin method was made by Avon and Durbin (1994), which concluded that the method produced unbiased estimates of groundwater recharge with a coefficient of variation of about 30 percent.

The Maxey-Eakin method estimates the annual average groundwater recharge resulting from both the deep penetration of precipitation within the higher mountain-block areas and streamflow infiltration within valley-floor areas. Where the average annual precipitation on valley-floor areas is less than 8 inches the Maxey-Eakin recharge percentage is zero (Table 1). This is consistent with investigations within western Nevada

(Nichols, 1987; and Fisher, 1992), the Las Vegas area (Elzeftawy and Mifflin, 1984), and the Mojave Desert (Prudic, 1994). Additionally, more local work has been completed in Ward Valley, which is located immediately adjacent to Cadiz Valley. Ward Valley was the proposed site for the disposal of low-level radioactive waste. As part of the permit review for the Ward Valley site, a National Research Council committee examined whether groundwater recharge occurs from the direct infiltration of precipitation. The committee's conclusion was that significant recharge does not occur (National Research Council, 1995; and Mifflin, 1995).

Given the long acceptance of the Maxey-Eakin method, and its consistency with recent research results, I used the method to calculate the average annual natural groundwater recharge for the Cadiz-Fenner Valley watershed. The calculation was based on a map produced by GeoScience (1999) that shows contours of average annual precipitation for the watershed. The annual precipitation range is from less than 3 to slightly more than 12 inches. The acreages for one-inch precipitation bands are listed in Table 2. Additionally, the volume of average annual precipitation for each precipitation band, corresponding to the acreage in each band, is listed in Table 2. The total precipitation volume, on areas where the average annual precipitation is larger than 8 inches, is 170,000 acre-feet. The calculation was based additionally on the recharge percentages listed in Table 1, which indicates a recharge factor of 3 percent for precipitation in the range from 8 to 12 inches. The resulting average annual recharge is 5,000 acre-feet. However, Nichols (2000) suggests a recharge factor of about 1 percent. If that were the case, the resulting average annual recharge would be 1,700 acre-feet.

R3-59

GeoScience (1999) estimated the average annual natural recharge to be 50,000 acre-feet. While their report suggests a range of values, that is the value used to develop the groundwater model, which in turn was used to evaluate the groundwater impacts of the Project. The probability that the true recharge is actually 50,000 acre-feet is essentially zero. The implausibility of the higher recharge estimate is indicated by Figure 2, which shows the comparison of the GeoScience (1999) estimate with other recharge estimates. Handman and others (1990), Kirk and Campana (1990), Harrill (1980), Thomas and others (1989), and Dettinger (1989) used geochemical and groundwater-modeling methods to estimate groundwater recharge to basins within Nevada (Figure 3), and those estimates are plotted on Figure 2 with respect to the corresponding recharge estimate using the Maxey-Eakin method. Likewise, the GeoScience (1999) estimated of groundwater recharge is plotted on Figure 2. In contrast with the recharge estimates for other groundwater basins, the estimate of groundwater recharge by GeoScience (1999) for the Cadiz-Fenner groundwater system deviates significantly from its corresponding Maxey-Eakin recharge estimate. That deviation from the norm can be interpreted as indicating that either the Cadiz-Fenner watershed is fundamentally different from the Nevada basins or the recharge has been overestimated. The latter most likely is the case.

The Watershed Model was Applied so as to Produce a High Recharge Estimate

GeoScience (1999) used a watershed model to estimate the natural recharge to the Cadiz-Fenner Valley groundwater system. The model was used to partition the precipitation on the watershed into runoff, evapotranspiration, and deep percolation. Using this modeling approach, the apparent assumption was made that the natural groundwater recharge equals the runoff plus the deep percolation. However, the treatment of the runoff in the analysis is unclear in the Draft EIR/EIS.

The assumption that all runoff becomes recharge is not valid for the Cadiz-Fenner Valley watershed. The runoff has three possible fates, and only one of those produces groundwater recharge. A significant component of runoff reaches Bristol and Cadiz lakes, where it evaporates. A component of runoff infiltrates into channel beds. Part of the infiltration is consumed by evaporation and other processes. However, some fraction of the infiltration becomes groundwater recharge. Consequently, even though GeoScience (1999) apparently assumed that all of the runoff becomes groundwater recharge, only part of the runoff actually becomes groundwater recharge. This is a critical conceptual omission in the development of the watershed model.

The assumption that all deep percolation becomes recharge is not valid for the Cadiz-Fenner Valley watershed. Deep percolation occurs within the mountain areas of the watershed. Where the precipitation is sufficiently high, the vegetation cover cannot consume all of the infiltrated precipitation, and the unconsumed portion of the precipitation percolates below the root zone. However, not all of that percolation becomes groundwater recharge within the valley-floor areas of the watershed. Owing to the hydrogeologic factors, the percolated water tends to move down the mountain slope. On the lower mountain slopes, especially where the slope is concave, the percolated water tends to come near the land surface of the mountain slope, where it is available for consumption by the vegetation cover. Consequently, only part of the initially unconsumed infiltration becomes groundwater recharge. This is a critical conceptual omission in the development of the watershed model.

The calculation of runoff within the watershed model is based on equations and parameter values taken from the County of San Bernardino hydrology manual. The hydrology manual was developed to regulate the design of stormwater facilities within the County. Accordingly, the focus of the manual is floodflows. Additionally, the floodflows computed using the procedures in the manual incorporate a safety factor, and the computed floodflows are larger than the expected value. Nevertheless, GeoScience (1999) uses the equations and parameter values from the hydrology manual to simulate both floodflows and the lower flows within the Cadiz-Fenner Valley watershed. This has the likely effect of over predicting average runoff.

The calculation of deep percolation within Cadiz-Fenner Valley watershed model involves subtracting the consumed soil water from the infiltrated water. A portion of precipitation infiltrates into the soil. A portion of the infiltrated water is consumed by the vegetation cover and other processes. The unconsumed soil water percolates below the

root zone. While the calculation of the deep percolation is mathematically simple, a considerable practical problem arises. The problem is that the consumption represent a large part of the infiltrated water, and small uncertainties in estimating the infiltration or consumption produce a large uncertainty in the estimate of deep percolation. For example, if the infiltration is represented by 100 units of water, the consumption would be perhaps 97 units of water. Correspondingly, the deep percolation would be 3 units of water. However, if the consumption were to be incorrectly estimated to be in error by about 10 percent or to be 87 units of water, the corresponding deep percolation would be 13 units of water. Consequently, a 10-percent error in estimating the actual consumption results in 430-percent error in estimating the deep percolation.

R3-60

The watershed model as described in the Draft EIS/EIR is an unreliable tool for estimating the natural groundwater recharge for the Cadiz-Fenner Valley watershed. The model has deficiencies that would tend to overestimate the actual recharge. The model could be utilized if it were to be conceptually more complete and regionalized. Regionalization is the process of developing parameter values for the model that are applicable to the region surrounding the Cadiz-Fenner Valley watershed. This is accomplished by calibrating the model to a number of different watersheds where streamflow data has been collected, and then regionalizing the parameter values based on factors such as vegetation cover and geology.

A High Groundwater Recharge is not Supported by the Chloride Model

R3-61

GeoScience (1999) used the chloride concentration in groundwater to estimate average annual recharge within the Fenner Valley. Because precipitation on the watershed is the source of the groundwater recharge, the source of chloride in groundwater is the chloride in precipitation. In the absence of physical or chemical sources or sinks for chloride within the watershed, the mass of chloride in the watershed precipitation is conserved within the groundwater system. Based on that conservation of chloride, GeoScience (1999) estimated the groundwater recharge by calculating the ratio of chloride in precipitation over the chloride in groundwater. That simple ratio represents the proportion of precipitation that becomes recharge.

This is a valid method (Dettinger, 1989), but it was misapplied to the Fenner Valley watershed. This is the case because chloride accumulates in the unsaturated zone of the valley-floor area (GeoScience ,1999). However, a critical assumption of the method is the absence of a chloride sink in the watershed. However, that assumption is not satisfied. The accumulation of chloride and other dissolved solids in the unsaturated zone has been observed in Cadiz Valley (GeoScience, 1999) and in neighboring Ward Valley (National Research Council, 1995).

Based on the chloride method, the Draft EIR/EIS reports groundwater recharge of 40,000 acre-feet per year for the Fenner Valley groundwater system. However, if the method had been applied correctly, the estimated recharge would have been about 2,000 acre-feet per year. Accordingly, the chloride method does not support a recharge of 50,000 acre-feet per year for the Cadiz-Fenner Valley groundwater system.

Groundwater Model is Invalid

A groundwater model was developed by GeoScience (1999) to assess the potential groundwater impacts of the Project. A groundwater model is a mathematical construct that represents the physics of groundwater systems in general, and particulars of a specific groundwater system. The model consists of a computer program and data files that are used as inputs to the computer program. The computer program represents the general physics of groundwater systems. The data files represent the particulars of the specific groundwater system being modeled. GeoScience (1999) used a computer program named MODFLOW, and they compiled data files to represent the Cadiz-Fenner Valley groundwater system. Using MODFLOW and the data files, they used the groundwater model to predict the future groundwater levels that would result from the operation of the Project.

An important component of the development of a groundwater model for any groundwater system is the calibration of the groundwater model. Calibration is the process of making adjustments to a groundwater model such that the model reproduces historical conditions to some reasonable degree. The presumption is that a model that can reproduce past conditions can make reasonably accurate predictions of possible future conditions under some assumed scenario regarding the future. The implementation of the Project is such a scenario. The model calibration is analogous to the calibration of a market scale. An object of known weight is put on the scale, and the scale dial is adjusted such that it reads the known weight. Thereafter, if an object of unknown weight is placed on the scale, the scale will correctly indicate the weight of the object.

For the calibration of the groundwater model of the Cadiz-Fenner Valley groundwater system, the estimate of average annual natural recharge was used as the "object of know weight" in the model calibration. Based on an estimated annual recharge of 50,000 acre-feet, the representation of the groundwater transmissivity in the model was adjusted so that the model would reproduce the measured groundwater levels. The groundwater model then was used with the adjusted transmissivity to predict the groundwater levels that would occur with the implementation of the Project. The predictions were made with the assumption that, if the model could accurately reproduce historical conditions, then it could predict future groundwater levels with equal accuracy. However, the assumption is flawed, and the groundwater model cannot be used as a tool for evaluating project impacts.

The problem is the value of natural recharge used in the model calibration. An implausible recharge value of 50,000 acre-feet is used in the groundwater model. That leads to the assignment of implausible transmissivity values to the groundwater model, which in turn leads to implausible model predictions. The calibration process as conducted by GeoScience (1999) is equivalent to calibrating a scale with a 50-pound weight but assuming that the actual weight is 5 pounds. Clearly, a market scale calibrated as such cannot accurately weigh an object.

To demonstrate the inadequacy of the groundwater model developed by GeoScience (1999), I developed an alternative groundwater model. The groundwater model uses the computer program FEMFLOW3D (Durbin and Bond, 1998). The model is based on a mathematical formulation that allows an irregular geographic grid to represent a groundwater system. The grid for the Cadiz-Fenner Valley groundwater system is shown on Figure 4. Using a value of annual natural recharge of 5,000 acre-feet, the model was calibrated to fit groundwater levels listed by Moyle (1967), Koehler (1983), and Freiwald (1984). The resulting distribution of transmissivity is shown on Figure 5.

R3-62

The Draft EIR/EIS indicates that the Project will produce only small impacts on groundwater levels over the 50-year project life. However, the alternative groundwater model indicates the opposite. Using the alternative groundwater model to simulate Scenario 6, the change in groundwater levels resulting from the implementation of the Project is shown on Figures 5 through 13. These maps and graphs indicate that large regional changes in groundwater levels will occur throughout Cadiz and Fenner Valleys as a result of the Project. These results completely contradict those reported in the Draft EIR/EIS (GeoScience, 1999). The Draft EIR/EIS states that the long-term change in regional groundwater levels will be less than 1 foot below Bristol Lake. If the groundwater model developed by GeoScience (1999) had been correctly conceptualized and calibrated, the simulation results from that model would have been like those produced by the alternative model. Because it was incompletely conceptualized and incorrectly calibrated, the model simulations produce a meaningless assessment of the expected project impacts. Accordingly, the model simulations cannot be relied upon.

In previous work (Durbin, 1983; and Durbin, 1978), I have shown how errors in the estimate of groundwater recharge produce errors in the model predictions. The model calibration transfers errors in the recharge value into the model transmissivity. The resulting errors in the model transmissivity are then transferred into the predicted groundwater levels. Correspondingly, the reliability of the model predictions are linked to the reliability of the recharge estimate.

Project Impacts to Bristol and Cadiz Dry Lakes Inadequately and Incompletely Evaluated

R3-63

Under natural conditions, the groundwater recharge within the Cadiz-Fenner Valley watershed flows through the groundwater system and then discharges as groundwater evaporation for the Bristol and Cadiz lake-bed surfaces. That discharge in part maintains moisture within the lake-bed sediments. The moisture is maintained also by surface-water flooding, but the groundwater discharge most likely maintains a critical role. Additionally, groundwater may be the source of springs and may support phreatophytic vegetation. The occurrence of springs and phreatophytes along the margins of playas is a common occurrence, and it may be an occurrence near Bristol and Cadiz Lakes.

With groundwater development, the long-term effect of exporting native groundwater will be to reduce or eliminate the groundwater discharge to Bristol and Cadiz Lakes. This will have environmental impacts. Firstly, the lake-bed surface will dry, with the probable result that dust will be produced during winds. The Draft EIS/EIR does not address this possibility. Studies need to be conducted to develop an understanding of the drying that might occur and the effect that such drying might have on dust production. Secondly, if springs or phreatophytic vegetation occur along the lake-bed margins, the springs will dry and the vegetation will be destroyed. The Draft EIS/EIR does not address this possibility. More fundamentally, the Draft EIS/EIR has not inventoried the environmental resources associated with Bristol and Cadiz Lakes, which is required in order to evaluate impacts.

R3-

R3-

Project Impacts to Springs Inadequately and Incompletely Evaluated

Groundwater exports, whether less than or in excess of the natural recharge, will create groundwater declines throughout the Cadiz-Fenner Valley area. With sufficient time, even a small long-term decline near the extraction wells will spread throughout the groundwater system.

A number of springs occur within the Cadiz-Fenner Valley watershed. Some of these springs are associated with the groundwater system that underlies the valley-floor areas. This is the groundwater system that will be impacted by the extraction and exportation of native groundwater. The decline of groundwater levels may adversely impact some of springs. However, the Draft EIR/EIS does not address this possibility. More fundamentally, the Draft EIR/EIS has inventoried neither the springs nor the environmental resources associated with the springs. As an essential element of an environmental assessment, all of the springs in the Cadiz-Fenner Valley watershed should be surveyed.

Cumulative Impacts are not Addressed

R3-

The Draft EIR/EIS does not address the cumulative impacts of groundwater development. Groundwater currently is pumped for agricultural irrigation within Cadiz Valley. In recent years, the annual pumpage has been about 5,000 acre-feet (GeoScience, 1999). However, the annual pumpage may be expanded to 30,000 acre-feet (URS Consultants, 1993a and 1993b), if additional lands are irrigated. This is pumping in addition to that associated with the Cadiz Valley Groundwater Storage Project. The Project may extract and export as much as 2 million acre-feet of groundwater over a 50-year period. If the agricultural operation were to expand concurrently to the maximum acreage, the agricultural pumping would extract and consume as much as an additional 1.5 million acre-feet of groundwater over a 50-year period. Based on the alternative groundwater model, Figures 14 and 15 show the change in groundwater levels associated with the cumulative impact of the Project and continuing agricultural operations.

The Draft EIR/EIS does not consider the impacts of concurrent pumping for agricultural production and exportation. Nevertheless, an essential element of an

environmental assessment is to consider these cumulative impacts. This would involve making simulations with a groundwater model.

R3-65

The Draft EIR/EIS Should be Revised and Recirculated

The groundwater analysis DRAFT EIR/EIS is sufficiently deficient that the impacts of the Cadiz Valley Groundwater Storage Project are unknown. The groundwater analysis is based on a groundwater model. The conceptual errors and omissions regarding the groundwater model and its inputs are such that the model simulations most likely do not represent the actual Project impacts. The groundwater model needs to be reconstructed.

R3-66

Even with an adequate groundwater model, the model results cannot be interpreted without an adequate assessment of the environmental resources. Accordingly, additional work needs to be completed to inventory the Bristol and Cadiz Lakes. The possible existence of springs and phreatophytic vegetation needs to be identified. Dust production from the lake-bed surfaces and the possible impacts of groundwater pumping on that production needs to be understood. Additional work needs to be completed to inventory springs throughout the Cadiz-Fenner Valley watershed. The springs and the associated environmental resources need to be surveyed. The potential for impacts to the springs needs to be understood.

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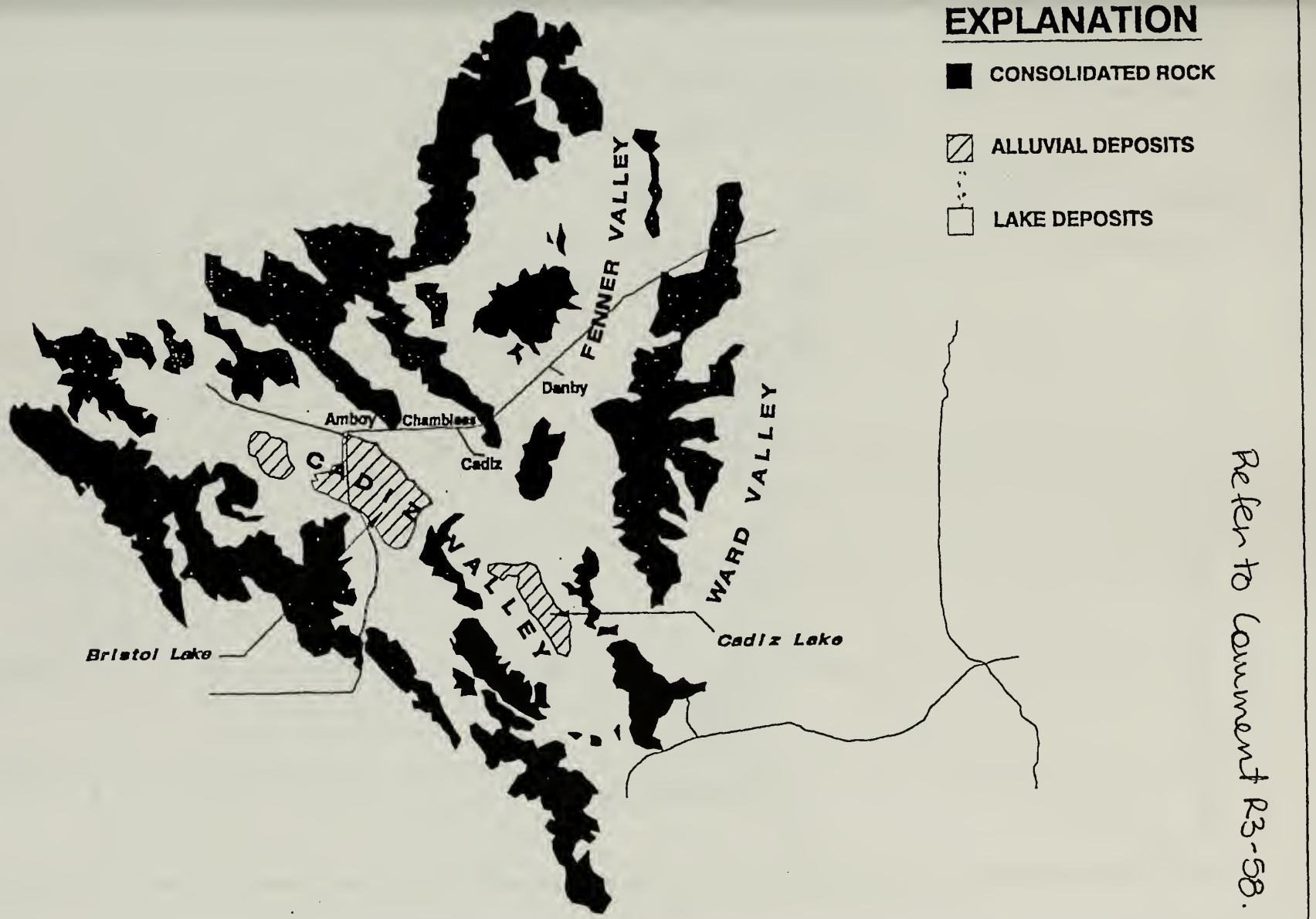
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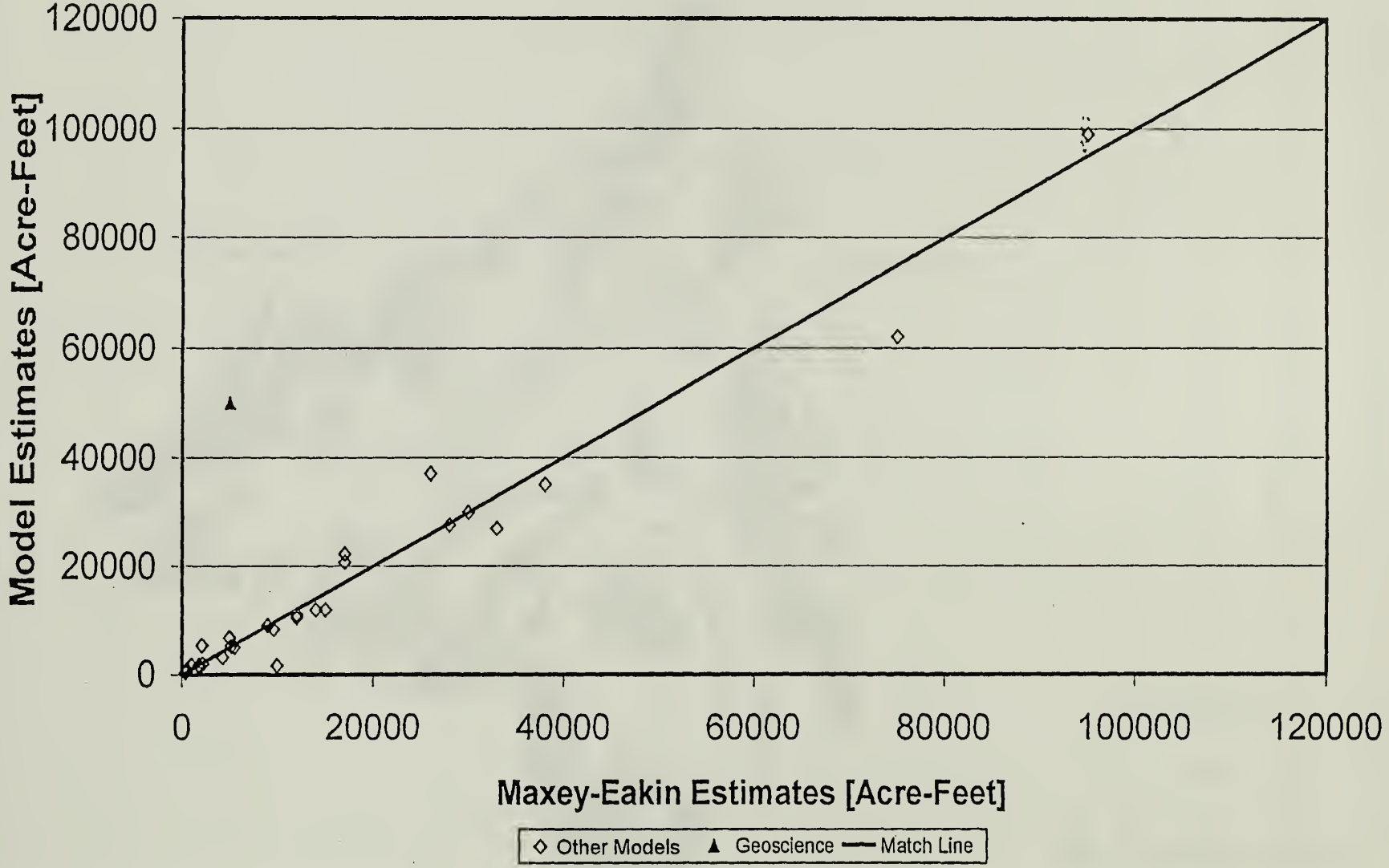
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Refer to Comment R3-58.

JOB NO. 7600	DATE: 02/28/00	GENERALIZED GEOLOGIC MAP OF CADIZ AND FENNER VALLEY	Figure 1
BY: TJD	DRAWN: DWD		
	REV:		

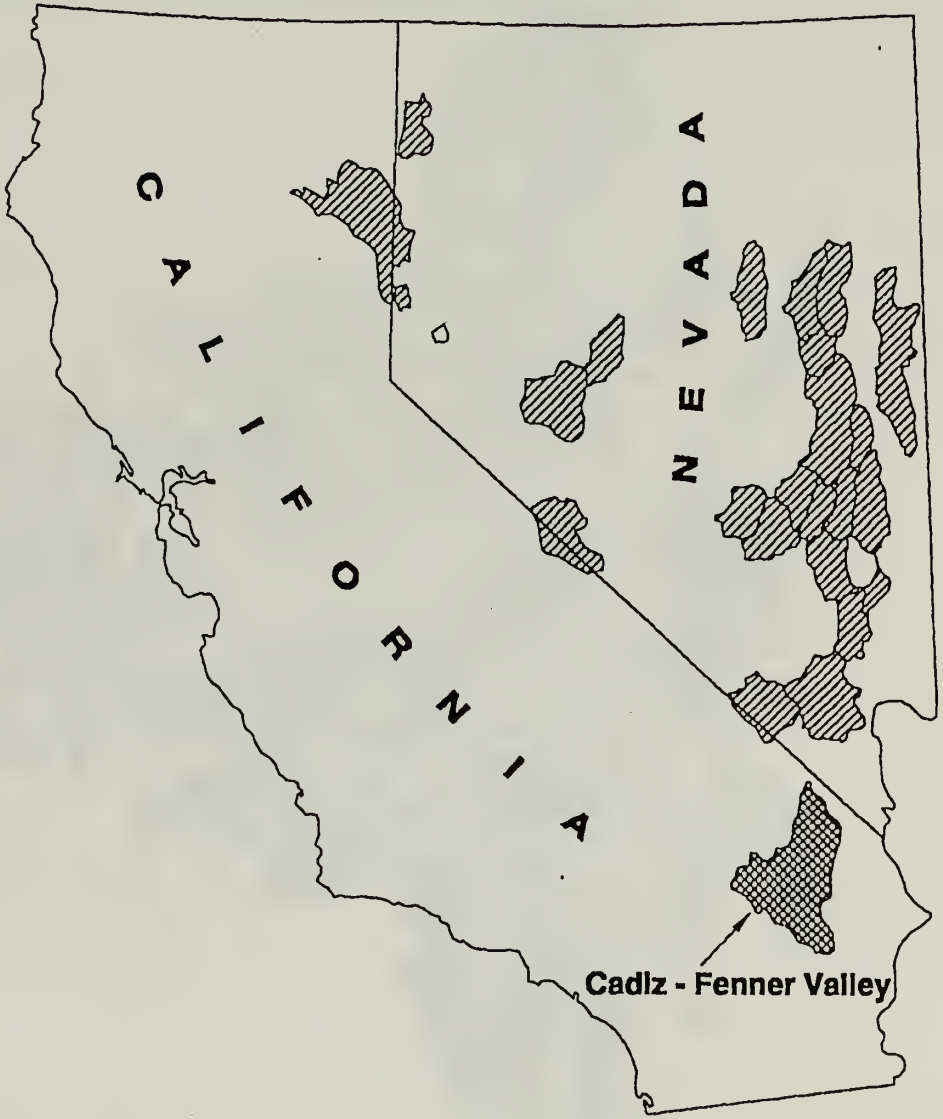
C:\7600\CADIZ\FIGURES\FIGURE 1.DWG



Refer to comment P3-59

JOB NO.: 7600	DATE: 02/28/00	COMPARISON OF Maxey - Eakin RECHARGE ESTIMATES	Figure

K:\7600 CADIZ\FIGURES\FIGURE 2.CDR



EXPLANATION

- Cadiz - Fenner Valley
- Other Basins

Refer to comment R3-59

JOB NO. 7600	DATE 02/28/2000	**BASINS WITH MAXEY-EAKIN RECHARGE ESTIMATES**	**Figure 3**
BY: TJD	DRAWN: DWD		
	REV:		

C:\7600\CADIZ\FIGURES\FIGURE_3.DWG

Refer to comment R3-62

EXPLANATION

- CONSOLIDATED ROCK
- ALLUVIAL DEPOSITS

JOB NO. 7600 DATE: 02/28/00

D:\CAD12\FIGURES\FIGURE 4.DWG



EXPLANATION

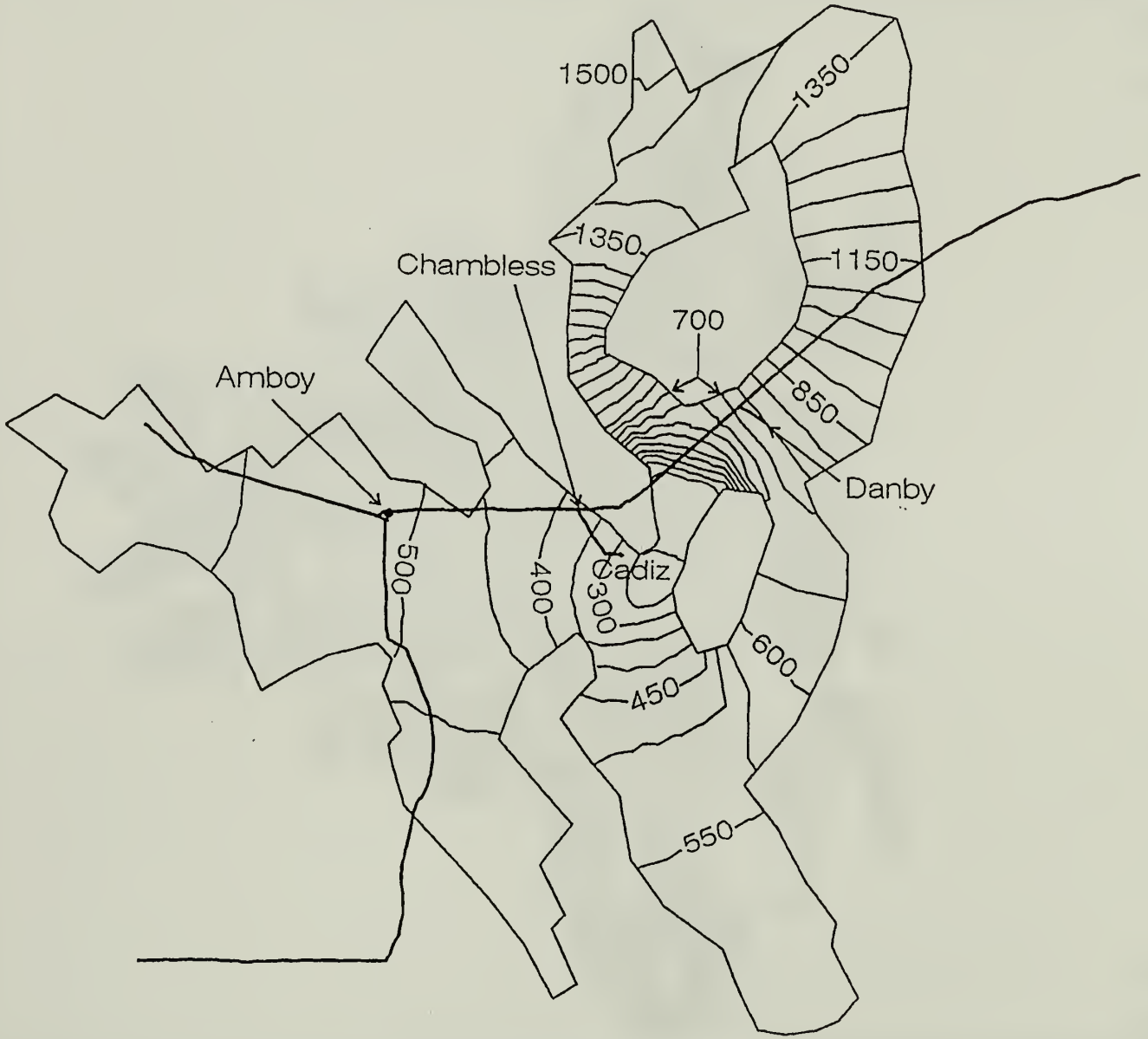
2,000 TRANSSMISSIVITY, Number indicates transmissivity in feet squared per day.

—— Model Boundry

Refer to comment R3-62

JOB NO. 7600	DATE: 02/28/00	CALIBRATED VALUES OF TRANSMISSIVITY FOR AN ALTERNATIVE GROUNDWATER MODEL	Figure 5
BY: TJD	DRAWN: DWD		
	REV:		

C:\7600\CADIZ\FIGURES\FIGURE 5.DWG



Refer to comment R3-62

JOB NO.: 7600	DATE: 02/28/00	CHANGE IN GROUNDWATER LEVELS RESULTING FROM	Figure

DRW7600 CADIZ\FIGURES\FIGURE 2 -15.CDR



Refer to Comment 23-62

JOB NO.: 7600	DATE: 02/28/00	CHANGE IN GROUNDWATER LEVELS RESULTING FROM THE PROJECT AFTER 100 YEARS	Figure 7
BY: TD	DRAWN: DWD		
	REV:		

C:\WORK\7600 CADIZ\FIGURES\FIGURE 2 -15.CDR

Refer to comment
R3-62

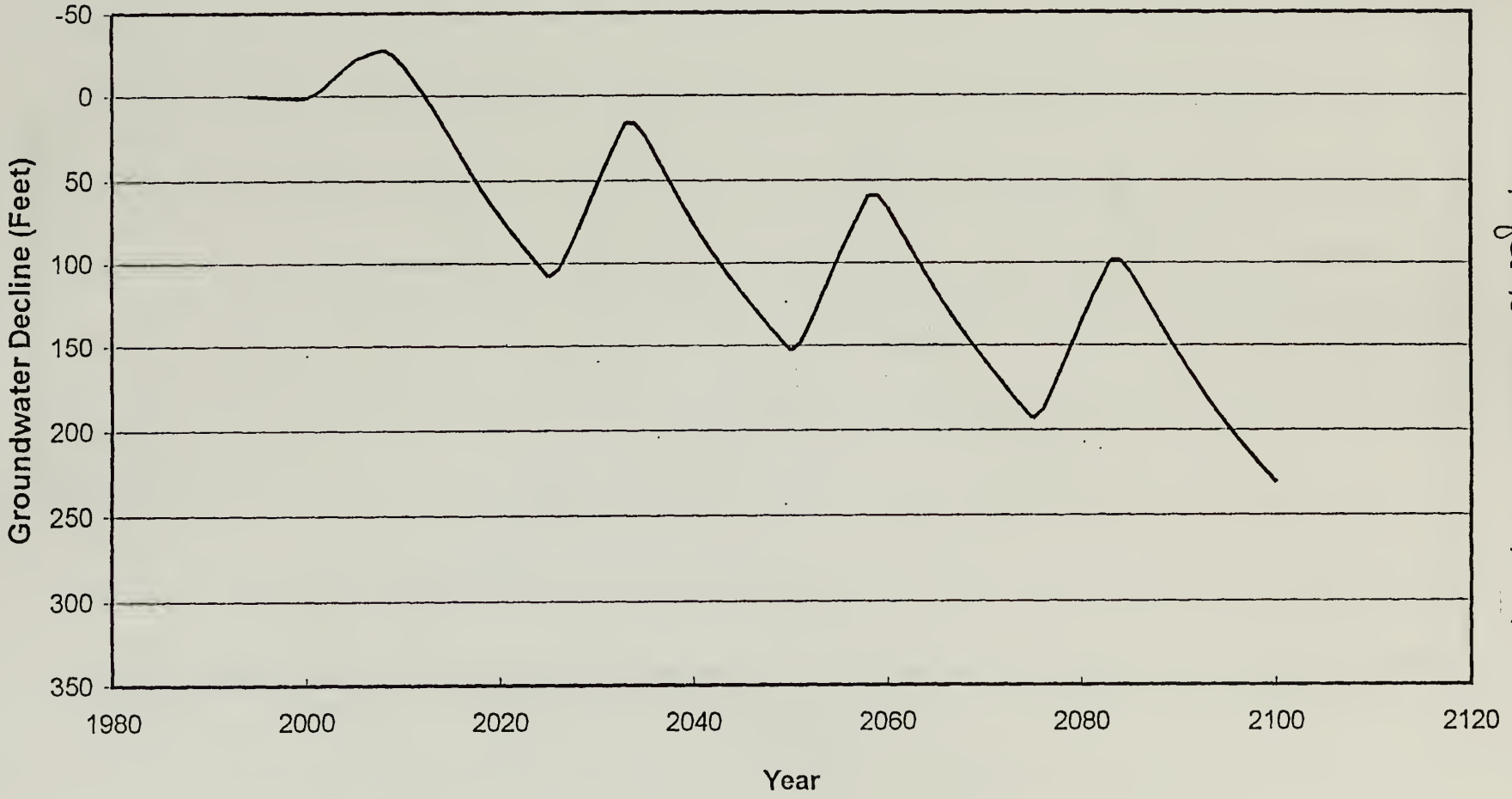
EXPLANATION

610 ● — NODE LOCATION OF HYDROGRAPH. Number indicates node of model.

600
610
Danby
288
371
Cadiz
Chambless
Amboy
77

7600 CADIZ\FIGURES\FIGURE 2 -15.CDR

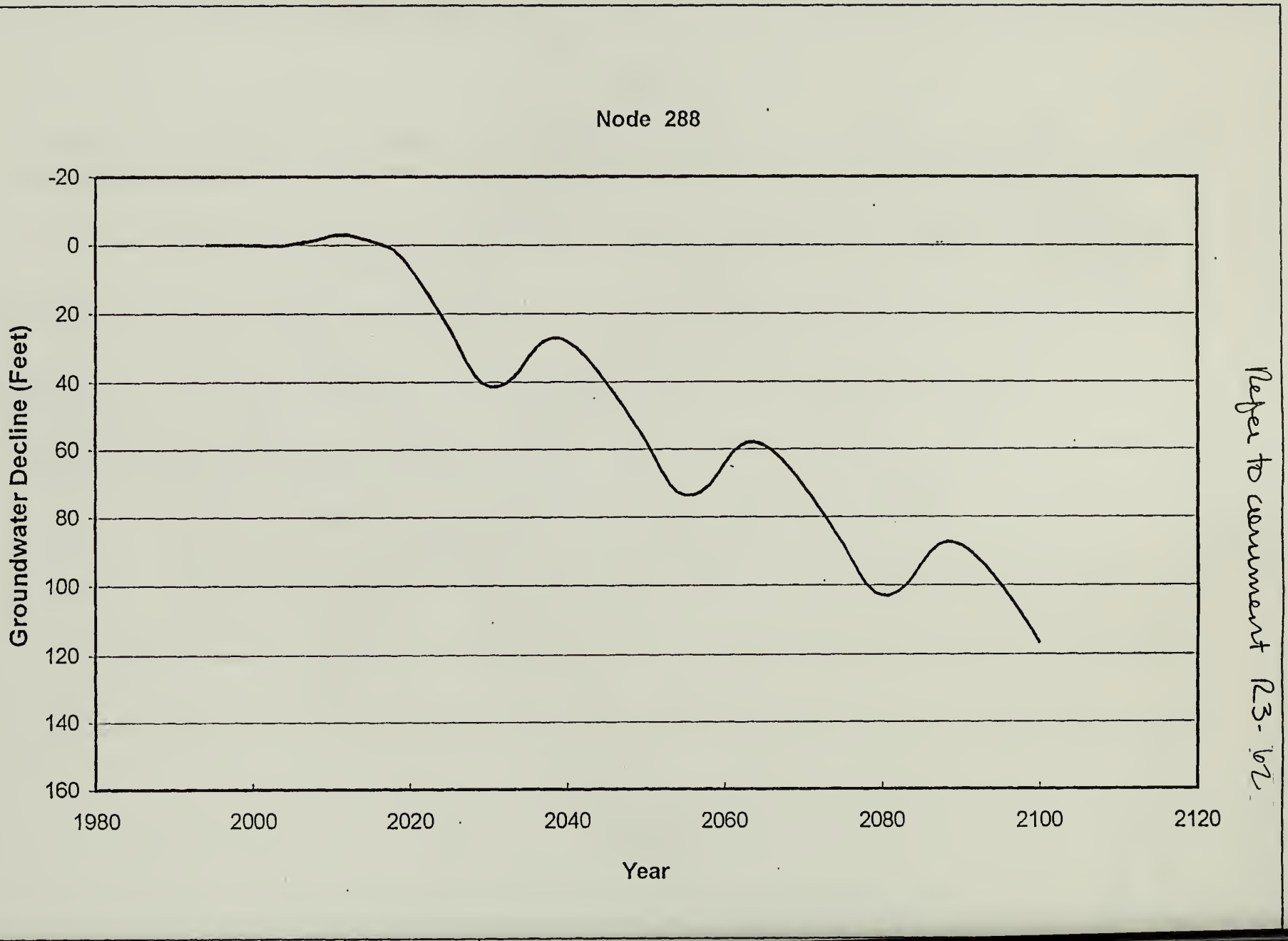
Node 77



Refer to comment R3-67

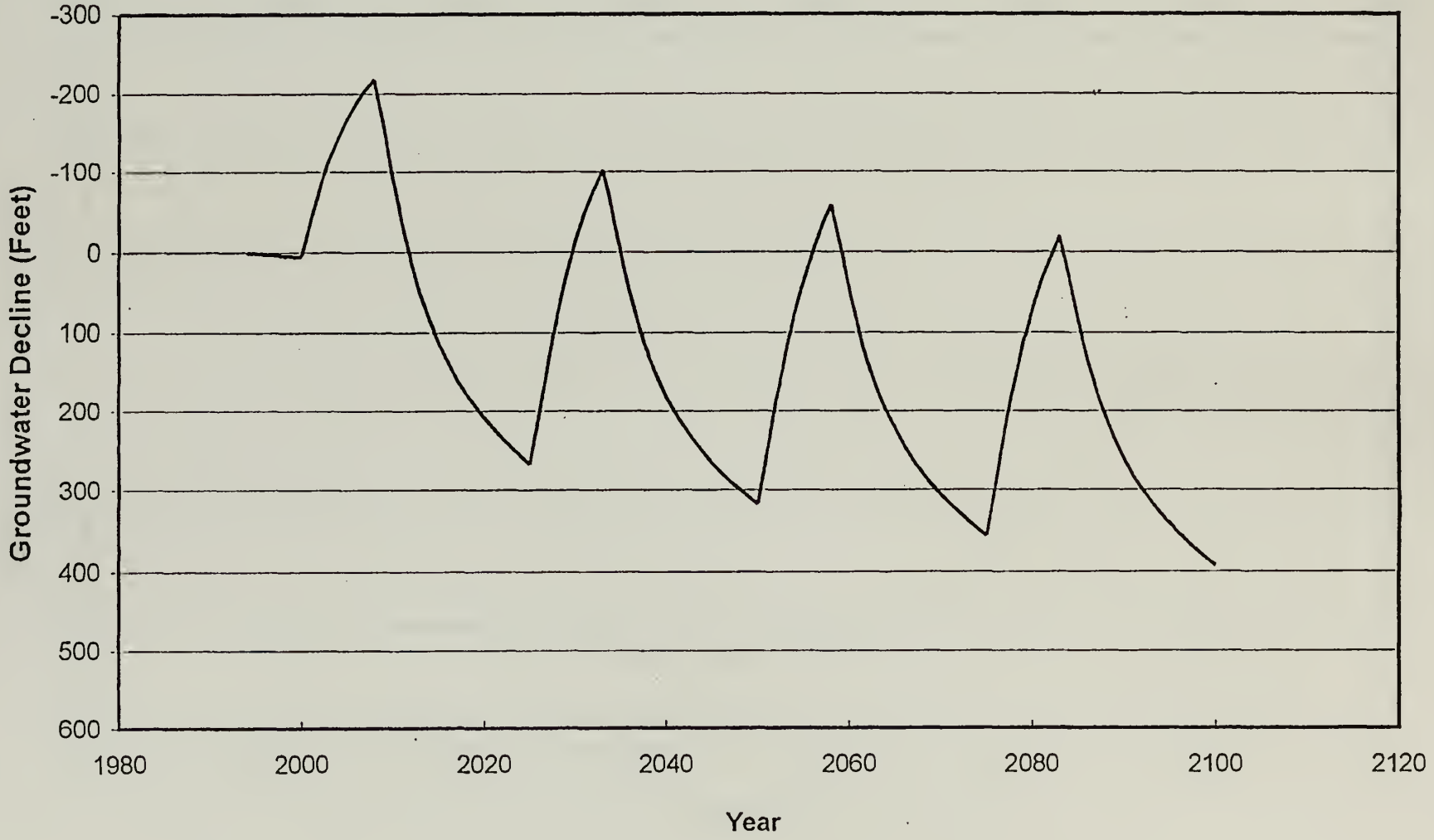
JOB NO.: 7600	DATE: 02/28/00	CHANGE IN GROUNDWATER NEAR BRISTOL LAKE	Figure 9
BY: TD	DRAWN: DWD		
	REV:		

C:\WORK\7600 CADIZ\FIGURES\FIGURE 2 - 15.CDR



Refer to comment R3-62

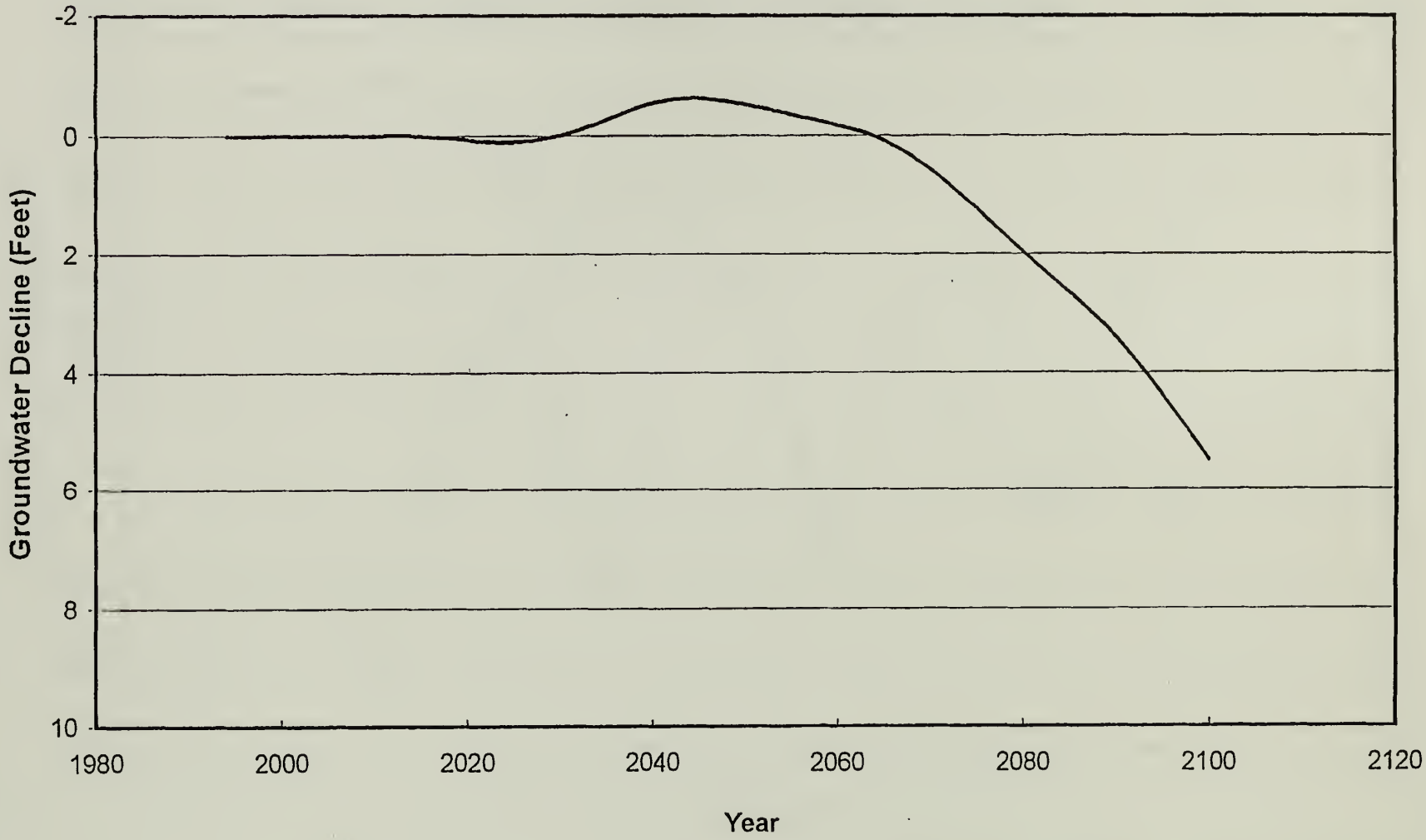
S00 CADIZ\FIGURES\FIGURE 2 -15.CDR



Refer to Comment R3-62

C:\WORK\7600 CADIZ\FIGURES\FIGURE 2 -15.CDR

JOB NO.: 7600	DATE: 02/28/00	CHANGE IN GROUNDWATER NEAR FENNER GAP	Figure 11
BY: TD	DRAWN: DWD		
	REV:		



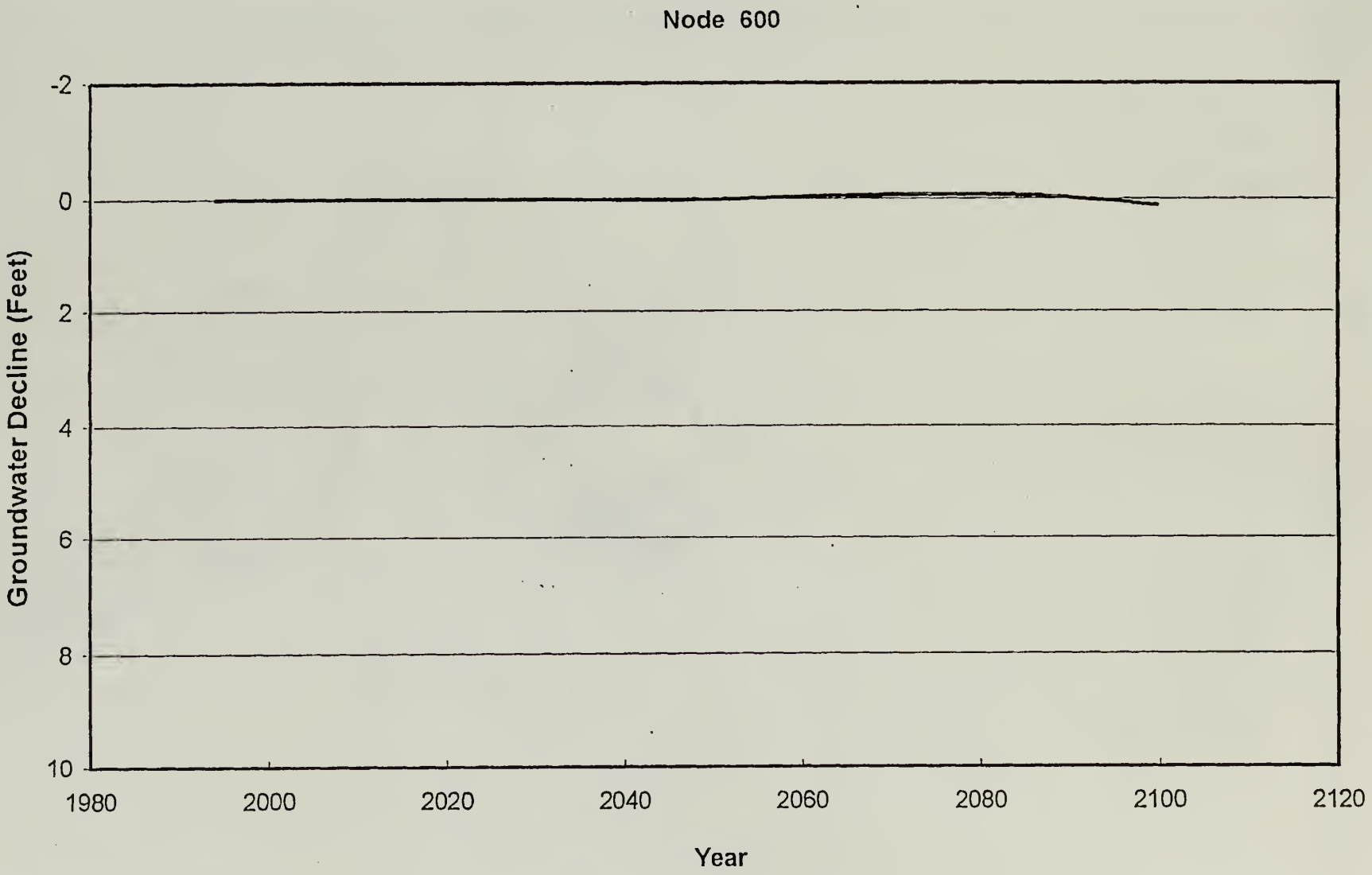
Refer to Comment R3-6.2

JOB NO.: 7600 | DATE: 02/28/00

CHANGE IN GROUNDWATER NEAR MIDDLE

Figure

\7600 CADIZ\FIGURES\FIGURE 2 -15.CDR



Refer to comment R3-6.12

C:\WORK\7600 CAD\2\FIGURES\FIGURE 2 -15.CDR

JOB NO.: 7600	DATE: 02/28/00	CHANGE IN GROUNDWATER NEAR UPPER END OF FENNER VALLEY	Figure 13
BY: TD	DRAWN: DWD		
	REV:		

Refer to comment R3-65

EXPLANATION

— 100 — WATER LEVEL CHANGE. Contour of change in groundwater level. Number indicates water-level decline in feet. All contours are in 50 foot intervals.

7600 CADIZ\FIGURES\FIGURE 2 -15.CDR



EXPLANATION

— 100 — WATER LEVEL CHANGE. Contour of change in groundwater level. Number indicates water-level decline in feet. All contours are in 50 foot intervals.

Refer to comment R3-65

JOB NO.: 7600	DATE: 02/28/00	CHANGE IN GROUNDWATER LEVELS RESULTING FROM THE CUMULATIVE IMPACT OF COMBINED PROJECT AND FARMING OPERATIONS AFTER 100 YEARS	**Figure 15**
BY: TD	DRAWN: DWD		
	REV:		

C:\WORK\7600 CADIZ\FIGURES\FIGURE 2 -15.CDR

Refer to comment
R3 - 59

TABLE 1
RECHARGE PERCENTAGES
FOR THE MAXEY-EAKIN METHOD

Precipitation Zone	Maxey-Eakin Coefficient (%)
>20 in.	25
15 - 20 in.	15
12 - 15 in.	7
8 - 12 in.	3
<8 in.	0

Refer to Comment R3-

TABLE 2
APPLICATION OF MAXEY-EAKIN METHOD
TO CADIZ-FENNER VALLEY WATERSHED

Precipitation Rate (inches)	Area (acres)	Precipitation Value (acre-feet)	Recharge Factor (percent)	Recharge Value (acre-feet)
8 - 9	29,300	20,800	3	600
9 - 10	47,500	37,600	3	1,100
10 - 11	70,500	61,700	3	1,900
11 - 12	62,700	60,100	3	1,800
Total	210,000	180,200		5,400

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Timothy J. Durbin

Ground-Water and Surface-Water Hydrologist

Education	Master of Science in Civil Engineering, 1971 Stanford University, Stanford, California Bachelor of Science in Civil Engineering, 1967 Stanford University, Stanford, California
Registration	Registered Civil Engineer, California Professional Engineer (Civil), Nevada Professional Engineer (Civil), Oregon Professional Engineer (Civil), Texas
Professional Societies	American Society of Civil Engineers American Geophysical Union National Water Well Association International Association of Hydrologists
Awards & Honors	U.S. Department of the Interior Honor Award U.S. Coast Guard Achievement Award

Professional Experience

February 1999 to Present

Timothy J. Durbin, Inc., Carmichael, California. President. Directs projects relating to ground-water and surface-water hydrology. Areas of expertise includ design of multidisciplinary investigations, design of large-scale programs for the collection and interpretation of hydrologic data, and application of mathematical modeling to the analysis of problems in ground-water and surface-water hydrology. Examples of such projects include:

- Analyzed the impacts of water-resource development and reservoir operations on water supply, streamflows, regional economics, and wildlife resources within the North Platte River Basin, Nebraska and Wyoming. Designed and directed a multi-disciplinary investigation

involving agricultural engineers, ground-water hydrologists, surface-water hydrologists, agricultural economists, and environmental scientists in six different consulting firms. Work is being done in support of litigation before the U.S. Supreme Court between the states of Nebraska and Wyoming.

- Analyzed the occurrence of MTBE in the Santa Monica ground-water basin, California. MTBE contamination from multiple sites has resulted in abandonment of public-supply wells. An analysis of the sources and fate of MTBE within the Santa Monica ground-water basin is being conducted. Work is being done within the context of State and Federal regulatory proceedings.

- Analyzed the relationship of landscape irrigation to the occurrence of a large-scale landslide in a residential area of Anaheim, California. The work involved developing a hydrologic description of the landslide area and then developing a ground-water model. The work was done in support of litigation.

- Assigned as Special Master in a technical dispute between City of San Bernardino, California and the Regional Water Quality Control Board. The issue is the cause of a wastewater discharge to the Santa Ana River. The work is being done within the context of a State regulatory proceeding.

May 1998 to January 1999

Bookman-Edmonston Engineering, Inc., Sacramento, California. Vice President. Directed projects related to ground-water and surface-water hydrology. Directed a staff of about 30 engineers, hydrologists, biologists, and geologists. Examples of such projects include:

- Analyzed the causes of flooding near Phoenix, Arizona. Residential and commercial areas were flooded during a summer storm. The analysis involved assessing the effect of irrigation ditches and other facilities on the depth of flooding. The work was done in support of litigation.

- Analyzed the impact of floodflows on the failure of a stream pipeline crossing within Thousand Oaks, California. A large sewer line failed owing to channel erosion during an extreme flood event. The recurrence interval of the erosion event was analyzed. The work was done within the context of a State regulatory proceeding.

- Analyzed the causes of soil saturation within an almond orchard near Turlock, California. The work involved evaluating the effects of

drainage pumping, precipitation, and irrigation on the depth below the land surface to the groundwater table. The work was done in support of litigation.

- Analyzed the effects of a large parking lot on downstream flooding and channel erosion. The work was done in support of litigation.

March 1989 to May 1998

Hydrologic Consultants, Inc., Sacramento, California. President. Directed projects related to ground-water and surface-water hydrology. Directed a staff of about 10 hydrologists, geologists, and engineers. Examples of such projects include:

- Analyzed the impacts of urban development on the water quality of Lake Tahoe, California. Work involved the analysis of sediment and nutrient transport in streams tributary to the lake and nutrient cycling within the lake. Work was done for litigation.

- Analyzed streamflow temperature within the Owens River, Owens Valley, California. Work was done to evaluate the hydrologic feasibility of reestablishing a fishery within the Owens River.

- Analyzed the source and management of surface-water and ground-water salinity within the Lompoc ground-water basin. Work involved developing groundwater and surface-water models of the Santa Ynez River basin, including salinity models. Work was done in support of litigation.

- Analyzed the causes and management of drainage water discharges from the Firebaugh and Central California Water District to natural watercourses and the San Joaquin River. Work was done in support of litigation.

- Developed a model for the optimal use of ground water and surface water within the Turlock and Modesto Irrigation Districts for the benefit of water supply and environmental resources. Work was done in support of the FERC re-licensing of New Don Pedro Reservoir.

- Analyzed the optimal facilities and facility operation for ground water and surface water within the Salinas Valley, California. Work involved development of ground-water, reservoir-operations, and optimization models. Work was done in support of litigation.

- Analyzed the source of soil and ground-water contamination by petroleum hydrocarbons at Santa Barbara, California. Work was done in support of litigation.

- Analyzed the source of soil and ground-water contamination by petroleum hydrocarbons at Oxnard, California. Work was done in support of litigation.

- Analyzed the occurrence of high ground-water levels in the San Bernardino Valley, California using surface-water and ground-water models. High ground-water levels resulted from excess artificial recharge and other factors. Work was done in support of litigation.

- Analyzed the effects of ground-water pumping and other factors in the depletion of streamflow in the Arkansas River at the Colorado-Kansas state line using surface-water, ground-water, and institutional models. Work was done in support of litigation in the U.S. Supreme Court between the states of Kansas and Colorado.

- Analyzed the effects of geothermal development on thermal-spring discharges in the Mammoth Lakes area, California using ground-water and heat-transport models. Work was done in support of litigation.

October 1985 to March 1989

S.S. Papadopulos & Associates, Inc., Davis, California. Vice President, and Manager of Davis office. Directed and conducted investigations of numerous aspects of ground-water hydrology. Examples of such projects include:

- Analyzed the migration of ground-water contaminants at the Love Canal hazardous waste site in Niagara Falls, New York using a ground-water model. The Love Canal site is a Superfund Site. Work was done in support of litigation.

- Analyzed the migration of ground-water contaminants at the Lone Pine landfill near Freehold, New Jersey. The Lone Pine landfill is a Superfund site. Work was done as part of a remedial investigation.

- Developed a computer program for the simulation of soil-water movement within and near a land-disposal facility. Work was done for the U.S. Environmental Protection Agency in support of the preparation regulations relating to the design of cover, liner, and leak-detection systems for land-disposal facilities.

- Developed a ground-water management plan for the San Bernardino Valley ground-water basin, California using a ground-water model and the techniques of operations research.

- Analyzed the impacts of urban development on flooding and sediment transport for streams in Orange County, California. Work was done to support the permitting of a large residential and commercial development project.

July 1984 to October 1985

Williamson and Schmid, Hydrotec Division, Davis, California. Manager of Davis office. Directed and conducted investigations for evaluation of ground-water resources, management of regional ground-water systems, and evaluation of hazardous waste sites. Studies involved identification of essential hydrologic issues, collection of hydrologic data, and application of quantitative methods to evaluate alternatives and to select an optimal solution. Examples of such projects include:

- Developed a three-dimensional ground-water model of a physical barrier at a hazardous waste landfill in order to evaluate performance of the existing barrier and proposed modifications. Work was done for regulatory compliance.

- Analyzed a hazardous waste site using isotope geochemistry and ground-water models as investigative tools. Work was done for regulatory compliance.

- Analyzed the utilization of fresh water body overlying saline water using surface geophysical techniques and a density-dependent ground-water flow model.

August 1982 to July 1984

U.S. Geological Survey, Water Resources Division, California District. District Chief (GS-15). Managed California District (350 persons in 14 offices) with annual budget of $25 million (in 1995 dollars) for hydrologic investigations. Responsible for developing plans for hydrologic investigations and ensuring plans were implemented. Provided organizational and technical input to development of large scale, multi-agency investigations. Examples of such projects include:

- Investigation of water quality related to agricultural drainage from the west side of San Joaquin Valley, California.

- Investigation of hydrodynamics of San Francisco Bay and Sacramento-San Joaquin, California Delta hydrologic systems.

- Investigation of the effects of exporting water from Owens Valley ground-water basin, California, including both hydrologic and biological impacts.

- Assessment of the ground-water resources of the Central Valley, California. Work was part of the Central Valley Regional Aquifer System Analysis (RASA).

- Development of numerical finite element codes (now used within the U.S. Geological Survey) for simulation of two- and three-dimensional ground-water flow and solute transport.

July 1977 to August 1982

U.S. Geological Survey, Water Resources Division, Nevada District. District Chief (GS-14) from 1/80 to 8/82 and Assistant District Chief (GS-13) from 7/77 to 1/80. Managed Nevada District (80 persons in three offices) with annual budget of $10 million (in 1995 dollars) for hydrologic investigations. Projects included:

- Design and organization of Truckee-Carson River Quality Assessment and Great Basin Regional Aquifer System Analysis (RASA).

- Development of ground-water and solute transport models for Washoe Valley, Galena Creek, Eagle Valley, and Carson Valley ground-water basins in Nevada.

- Design and organization of regional geothermal investigations of areas throughout Nevada including Dixie Valley, Ruby Valley, Black Rock Desert, and Carson Desert.

July 1972 to July 1977

U.S. Geological Survey, Water Resources Division, California District. Hydrologist (GS-13; 12/75 to 7/77), Hydrologist (GS-12; 10/74 to 12/74), Hydrologist (GS-11; 9/73 to 10/74), and Hydrologist (GS-9; 7/72 to 9/73). Served as Project Chief for numerous ground-water projects involving hydrogeologic and geophysical investigations and ground-water modeling. Conducted research in development of finite-element models for simulation of ground-water flow and mass transport. Applied results of research to solution of management problems and provided assistance to hydrologists within USGS and other public agencies in use of these models.

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Publications

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2. *Durbin, T.J.,* and Hardt, W.F., 1974, Hydrologic analysis of the Mojave River, California, using a mathematical model: U.S. Geological Survey Water-Resources Investigation 17-74, 50 p.

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8. Arteaga, F.E., and *Durbin, T.J.,* 1978, Development of a relation for steady-state pumping rate from Eagle Valley ground-water basin, Nevada: U.S. Geological Survey Open-File Report 79-261, 44 p.

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12. Katzer, T., *Durbin, T.J.*, and Maurer, D.K., 1984, Water-resources appraisal of the Galena Creek basin, Washoe County, Nevada: U.S. Geological Survey Open-File Report 84-433, 59 p.

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14. Hromadka, T.V., and *Durbin, T.J.*, 1984, Adjusting the nodal point distribution in domain ground-water flow numerical models: in Proceedings of Fifth International Conference on Finite Elements in Water Resources, p. 265-284.

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2. Hromadka, T.V., McCuen, R.H., Devries, J.J., and *Durbin, T.J.*, 1993, Computer methods in environmental and water resources engineering: Lighthouse Publications, Mission Viejo (California), 590 p.

INTEROFFICE MEMO

TE: March 7, 2000 PHONE: 387-2805
MAIL CODE: 0835

M: **PATRICK J. MEAD**, P.E., Assistant Director - Planning
Transportation/Flood Control Department

TO: **JOHN GOSS**, Assistant County Administrator
Economic Development and Public Services Group

CT: **EIR TRAFFIC COMPONENT-MWD/CADIZ WATER PROJECT**

---

his office has reviewed the traffic data provided for the subject project and has determined that the llowing mitigation for traffic impacts is required: R3-67

♦ **OPENING DAY IMPROVEMENTS REQUIRED**

1. *Addition of a left turn pocket for westbound National Trails Highway (NTH) at Amboy Road. (Est. $70,000)* R3-68
2. *Addition of a left turn pocket for eastbound NTH at Kelbaker Road. (Est. $70,000)* R3-69
3. *Installation of safety flashers for both directions at curve on Amboy Road, west of Ironage Road. (Est. $40,000)* R3-70

Total: $180,000

he project should fund 100% of these improvements. R3-71

FUTURE ROAD IMPACTS

air Share Contributions:

	N.T.H.		***Cost***	***Percentage of trips over life of Improvement***
	Road Improvement	*Amboy Rd to Kelbaker Rd*	*$ 41,000*	*(16.7%)*
		Kelbaker Rd to Cadiz Rd	*$118 ,000*	*(50.4%)*
			$159,000	
♦	Bridge Improvements (local share)	*Amboy Rd to Kelbaker Rd*	*$ 57,000*	***(3.1%)*
		Kelbaker Rd to Cadiz Rd	***$244,000*	***(14%)*
			***$301,000*	
	AMBOY ROAD			
	Road Improvements	*NTH to Ironage Rd*	*$186,000*	*(23.6%)*
		Ironage Rd to 29 Palms Cir	*$ 97,000*	*(23.6%)*
			$283,000	

R3-72 R3-73 R3-74 R3-75 R3-76 R3-77

TOTAL SHARE OF FUTURE COSTS *****$743,000*** R3-78

The impacts of the project are in two categories. First, the immediate safety concerns of the large ncreases in daily construction traffic requiring turn pockets and flashers. Second, the heavy additional airshare impacts on the road and bridge infrastructure along N.T.H. and Amboy Road caused by the ncrease in auto and truck traffic for the duration of the project. R3-79

♦ *Priority Items*
*** Revised 2/15/2000*

PJM:AMC

cc: Randy Scott
KAM/RF
JYB

INTEROFFICE MEMO

DATE February 22, 2000 PHONE 307-2669

FROM **Robert L. McKernan**, Senior Curator
Section of Biological Sciences, San Bernardino County Museum

TO **JOHN GOSS**, Assistant County Administrator
Economic Development and Public Services Group

SUBJECT CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM – DRAFT EIR/EIS

23-80 The Section of Biological Sciences at the San Bernardino County Museum has reviewed the above-mentioned document as it per to Biological resources. The following comments and suggestions are the result of that review.

23-81 The biological resource technical report # 1164.
It appears that the field reconnaissance was the standard biological consultant's methods. Although, it appears that there wa wide breath of survey days, for a project of this size, I think more focused sensitive species surveys should have been condu

23-82 (e.g., desert tortoise). The general mammal surveys conducted for American badger, Yuma mountain loins and Nelson's big sheep should have been more intensive. This comment is based on the fact that movement zones for these mammals could b impeded by the various alternatives through direct and indirect impacts. Within the project area Mojave wash scrub is a

23-83 significant resource and for this reason a more detailed discussions regarding avoidance of this habitat should have been conducted. Because of the amount of "Special Interest Habitat" within the project area and the importance of this habitat

23-84 statewide and worldwide, a more detailed discussion of impacts and avoidance should have been completed. Overall impac

23-85 Special-Status Species should have included further analysis and discussions. This should include impacts and recommendations to more fully assess project affects. Although the USFWS will provide a Biological Opinion for the proje more detailed analysis from the consultant's prior to the BO would benefit San Bernardino County in its review of specific p impacts.

23-86 Within the project document no thorough analysis was indicated regarding the potential effects of "de-watering" of springs a seasonal water sources by groundwater extraction in this area of the Mojave Desert. The fact that springs and seasonal surfa water is critical for wildlife species in arid environments; there is a potential for significant effects to water sources in the re With the connectivity of Bristol, Fenner, and the Cadiz watersheds there will effects through extraction. Therefore, a compl sensitivity analysis should be performed regarding depletion of water sources for wildlife over a 200 square mile area coveri the effected watershed.

23-87 Although spreading basins at Cadiz will provide loafing and resting areas for migratory birds which are transients to the area spreading basins are usually relatively shallow. These shallow environments can create avian cholera and avian botulism th significantly impact migratory bird species as well as other wildlife species.

23-88 Growth Inducements Impacts. The Cadiz project with its infrastructure needs and planned growth will have environmental impacts within San Bernardino County. Regional growth projections have to be address and evaluated on a regional perspe Specifically, what effect will this project have on San Bernardino County's ongoing regional planning efforts, such as the Sa Bernardino Valley MSHCP and the Western Mojave regional plan? San Bernardino County has provided significant resour the planning efforts of both regional plans and indirect effects from the Cadiz Project regionally could have significant implications to these plans and their future implementation.

23-89 Cumulative impacts and related projects within the Cadiz Valley have not been fully or adequately analyzed. The short and term environment effects I believe will be significant.
Cumulative impacts regionally based on increased infrastructure and growth has to be analyzed more thoroughly. As menti earlier, cumulative growth would have a potential negative effect on San Bernardino County's regional planning efforts.

cc. Kevin Thomas, CCR
Randy Scott, Land Use Services

ATE February 22, 2000 PHONE 307-2669

ROM **KATHLEEN SPRINGER**, Senior Curator
Section of Geological Sciences, San Bernardino County Museum

TO **JOHN GOSS**, Assistant County Administrator
Economic Development and Public Services Group

JECT **CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM – DRAFT EIR/EIS**

Section of Geological Sciences at the San Bernardino County Museum has reviewed the e-mentioned document as it pertains to paleontologic resources. The following ments, suggestions and queries are the result of that review.

here is no paleontologic technical report included in the EIR/EIS. The description of he fossil resources does not correlate with the table of fossil localities. One can not iscern where the resources were recovered and what was recovered (i.e. taxa and lements) based on the information provided in Section 5-16, beginning on page 5-278. here is no itemized, accession inventory of fossil resources recovered from the aleontologic survey of the project area. This is a requirement of the County of San ernardino and the BLM.

here are 23 sites with fossil specimens recovered from the project area. To date, no ossil specimens have been curated into the collections of the SBCM. The Museum rovided the project paleontologist with two accession numbers to assist them in the uration of the specimens prior to storage at the SBCM nearly one year ago. Two umbers are assigned because BLM (i.e. Federal) property is given a separate number ecause they are considered on "permanent loan" to the Museum, with the legal owner s the Federal government. The Museum has not received the fossils, the field data, or he back-up documentation for these fossil specimens. Before the specimens are deposited with the Museum, we require a copy of the Antiquities Act Permit obtained by he project paleontologist for the collection of paleontologic resources on BLM land and hat he/she obtained the proper Field Work Authorization Permit before proceeding with he survey work.

n Tables ES-4 and 12-1, it should be noted that permits are required for paleontologic ield studies on BLM land.

he text has no mention in Section 5-16, starting on page 5-278, of the mitigation conditions of the County of San Bernardino or the requirements of the BLM regarding ossil resources. The Society of Vertebrate Paleontology is an international organization of vertebrate paleontologists that upholds ethical conduct in paleontology and lobbies for he protection of fossil resources, but is not considered the Lead Agency.

R3-96

- Interestingly, in the discussion regarding the thresholds of significance of fossil resources, a block of text starting on page 5-280 and ending on page 5-281 has bee lifted ***verbatim*** from the guidelines written and established by the San Bernardino County Museum. The source of these guidelines should be referenced.

R3-97

- Mitigation measure P-6. This is **not** a mitigation measure. It is a financial constra on the implementation of mitigation measures P-1 through P-5. I have never seen s a condition applied to paleontological resource impacts. For cultural resources, I ha seen "not to exceed ½ of 1% of total project costs", (which is in the CEQA statute Se 21083.2), but ¼ of 1% for paleontologic mitigation is an arbitrary limitation impose MWD. I believe that full mitigation be applied that is consistent with San Bernardi County policies on paleontological resource impacts as described below.

R3-98

- With the implementation of a Paleontological Resource Mitigation Plan consistent w that described below, I believe that potential impacts could be mitigated to a less th significant level for the project. I believe that this level of mitigation is entirely appropriate and warranted for a project of this magnitude and cost.

R3-99

- **The following are the standard mitigation conditions that the San Berna County Museum has designed and would recommend for this project. P compare to the mitigation conditions in the text:**

The following are mitigation guidelines to be employed during excavation conducte PROJECT X. These measures are commensurate with those utilized throughout sou California for numerous projects on public and private land. The mitigation measure effectively mitigate adverse impacts to paleontologic resources to less than signi levels. These measures are summarized below as Paleontology Actions (PA) 1 throu The specifics of the mitigation efforts, including monitoring of excavation, cur preparation of the final report and storage of specimens,

Prior to construction

R3-100

PA-1 An orientation workshop shall be prepared and presented by a profes vertebrate paleontologist to explain paleontologic mitigation guidelines procedures to the contractor and construction workers. This workshop c presented in conjunction with any pre-grade meetings conducted pri excavation. The workshop will review the Paleontologic Resources Miti Plan (PRMP), and will endeavor to explain the nature, appearance importance of fossil vertebrates, invertebrates and plants. The responsib of construction personnel in a paleontologic mitigation context will al detailed. Construction workers shall not collect any fossils found d construction before their significance can be assessed by a qua paleontologist. An outline for the paleontology workshop should be pro A document entitled A Checklist for Paleontologic Resources and Guidelin Construction Personnel should be prepared for this task.

All construction inspectors and environmental monitors shall be briefed c locations of high sensitivity areas for paleontologic resources as par training program including information on all aspects of the project. training program will cover items addressed in the paleontology worksho

R3-100

more training and detail will be included. It will be stated during the paleontology briefing that it is unlawful for construction inspectors or environmental monitors to collect fossils from the project alignment or any other construction area during construction, as these fossils belong to the public and will be placed in a recognized curation facility such as a museum or university, where they will be treated, stored, maintained and made available for scientific study.

g construction

R3-101

If paleontologic resources are found at any time during construction, work shall be redirected to another area nearby so that the scientific significance of the find may be assessed. Construction monitors shall notify the onsite construction monitoring coordinator. As part of the monitoring procedure, a qualified professional vertebrate paleontologist with regional experience shall then assess the significance of the find and recommend additional mitigation measures, as necessary. The paleontologist shall be retained to perform inspection of the excavation and to salvage exposed fossils. A standard sample [2,724 kg (= 6,000 lbs. or 2.4 cubic meters) of fossiliferous sediment may be collected for recovery and identification of microvertebrates (rodents, birds, rabbits). Monitors shall also determine whether the fossil is part of an archaeological deposit; if so, it shall then be considered a cultural resource discovery and treated according to the procedures specified in the Cultural Resource Monitoring Plan prepared prior to construction.

This measure will be implemented by requiring paleontologic monitoring in rock units that have been designated as having high potential to contain paleontologic resources. The paleontologic monitoring plan calls for the placement of one paleontologic monitor at each construction location in all areas of high paleontologic sensitivity. This monitor will be a qualified vertebrate paleontologist with regional experience. The paleontologic monitor is empowered to determine significance in the field and recover the data immediately.

If fossils are discovered by environmental monitors and/or construction personnel in areas of low paleontologic sensitivity, work shall be redirected to another area nearby so that the scientific significance of the find may be assessed.

Large fossils exposed by excavation will be expeditiously jacketed with plaster bandages or strips of burlap saturated with plaster, then removed and returned to the paleontology laboratory for preparation, identification and permanent storage. Standard samples [2,724 kg (= 6,000 lbs. or 2.4 cubic meters) of sediment, as modified from Wolff (1975)] of fossiliferous sediments will be salvaged from designated microfossil sampling localities. This sedimentary matrix will be stockpiled on-site, and subsequently processed; recovered specimens will be identified and curated.

PA-3 The preservation of significant fossils (if found during construction) by re will occur as described in PA-3, unless it is not feasible. Due to the pot for rapid deterioration of exposed surface fossils, preservation by avoida not an acceptable mitigation measure. In cases where the fossil(s) cann removed immediately, the location of the fossil(s) shall be stabilized to pr further deterioration prior to data recovery under the direction of a qua vertebrate paleontologist. Stabilization in these cases can (as necessary safely feasible) include the following: removal of overburden; exposure c resource(s); application of an appropriate hardening agent (e.g., Glypt large vertebrate fossils); and (in those cases where the resource cann recovered at all) reburial of the resource. Data recovery in these case include documentation of pertinent data (lithology, stratigraphy, taphon etc.) as well as photodocumentation where possible.

R3-102

This measure will be further implemented by the mobilization of addi professional paleontologic field monitors within hours of the discov unusually large finds are encountered. This procedure will optimize recovery and avoid construction delays.

After construction

PA-4 For all macro- and microfossils (vertebrate, invertebrate and/or recovered during construction, a data recovery program shall be under that includes preparation of recovered specimens to a point of identific and permanent preservation (including screen washing of fossilif sediment samples to recover small to microscopic vertebrate fo preparation of large vertebrate fossils recovered in plaster jackets; long stabilization of all recovered significant fossils; and analysis. The paleont monitoring and salvage team shall include an expert in vertebrate paleont A final report, including an itemized and accessioned inventory of recc specimens, shall be prepared by a professional vertebrate paleontologis distributed to the appropriate lead agencies. This report shall includ important megainvertebrate fossil localities and/or fossil plant localities.

R3-103

PA-5 All fossil remains recovered during construction and associated develop activity shall be curated and stored at the expense of the project proponen qualified research facility (e.g., SBCM). A Memorandum of Agreement (for curation shall be reviewed and approved among the developers appropriate Lead Agency or other landowner (if land is owned by others) the curation facility providing rights to these materials for guaranteed f research access.

R3-104

If I can provide any clarification or other information please contact me at (909) 307 ext. 242.

OFFICERS
LEY E. SPRAGUE
MANAGER/TREASURER
LEEN M. HARRIS
SECRETARY
ELL G. BEHRENS
ATTORNEY

DIRECTORS
KENNETH H. WITT
PRESIDENT
H.E. "BILL" HARTGE
VICE PRESIDENT
WAYNE A. CLARK
WILLIAM DAVENPORT
ED ROYCE, SR.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

OX 20895 • 10500 ELLIS AVENUE • FOUNTAIN VALLEY, CALIFORNIA 92728 • (714) 963-3058 • FAX (714) 964-9389

R4

March 8, 2000

Mr. Dirk Reed

Metropolitan Water District of Southern California
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054-0153

Subject: DRAFT EIR/EIS for CADIZ GROUNDWATER STORAGE AND DRY YEAR SUPPLY PROGRAM

Dear Mr. Reed:

The Municipal Water District of Orange County has reviewed the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Cadiz Groundwater Storage and Dry-Year Supply Program (Cadiz Project) and offers the following comments for further consideration.

Our comments relate to either (1) assumed amounts of surplus Colorado River and/or native waters available; (2) description of project need and project alternatives; or (3) potential environmental issues associated with operation of the spreading basins and well field.

R4-1

The comments are meant to result in improved descriptions of Project Need and Project Alternatives, as well as an improved discussion of potential impacts and mitigation measures related to operation of the spreading basins and well field.

Comment 1: Need for Project (ES-5 and Section 2)

R4-2

- The discussion on Project Need should include additional information regarding the efforts currently underway to develop a California 4.4 Plan for Colorado River use. The availability and permission to store surplus Colorado River water, as part of the terms of a California Plan is an important assumption for the conjunctive use storage feature of the project.

- The estimated shortfall of 170,000 AF in 2020 assumes no additional long-term or dry-year option transfers from Imperial Irrigation District, Palo Verde Irrigation District (PVID), or other parties on the River. In particular, we do not understand why a PVID dry-year option arrangement would not be one of the potential alternatives to a portion of the dry year yield generated in the Project. Metropolitan completed a successful demonstration project with PVID in 1995, which conserved 186,000 AF over a two-year period, at a cost of $135/AF.

- Without the project or any of the listed alternatives what would the impact be on interruptible water sales programs Metropolitan operates for Agriculture and Groundwater Replenishment? Would interruptions be more frequent?

- Could some of the surplus Colorado River water be stored in local groundwater basins within the Metropolitan service area and retrieved during future shortages?

Comment 2: Operations and Maintenance – Project Spreading Basins (ES-16):

- How will excess fine materials, silt and scum, which can accumulate in spreading basins over time, be removed and disposed of? What are the possible impacts and what mitigation measures are proposed for these operations?

- Will the spreading basins create new wetlands type habitat or attract *species of interest* when in the wet mode of operation? What impacts may occur, and what mitigation measures are proposed when the basins are taken from a wet mode to a dry mode?

Comment 3: Operations and Maintenance - Project Well Field Facilities (ES-16)

- *"Routine inspection would be performed weekly and/or monthly."* More frequent site visits may be required to verify security, public safety and operational integrity of the well field and spreading basins. However, the proposed mitigation measures would appear appropriate even with higher frequency of site visits.

In reviewing the EIR/EIS we noted that several potential Project impacts would require mitigation through a Groundwater Monitoring and Management Plan (mitigation measure WR-1). While this appears to be an appropriate mitigation strategy, implementation of this mitigation measure may result in reduction of anticipated Project performance (i.e. - yield, recharge, storage, and/or pumping withdrawal capabilities). Since this is not an issue directly within the scope of the EIR/EIS, we will communicate our concerns about the implications of potential reduced project performance in a separate letter. R4-9

We appreciate the opportunity to comment on the EIR/EIS. R4-10

Sincerely,

Matthew G. Stone, PE
Associate General Manager, Planning

cc: Stan Sprague

ALL AMERICAN PIPELINE, L.P.

January 31, 2000

Mr. Dirk Reed
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-1053

B1

RE: R/W 99007/99723-1SN; Cadiz Groundwater Storage and Dry -Year Supply Program

Dear Mr. Reed:

The purpose of this letter is to inform you of a significant change in the status of our 30-inch diameter pipeline located near your proposed Cadiz Groundwater Storage Project.

B1-1

Our pipeline system from Emidio, CA to West Texas has been shutdown and the crude oil in the pipeline is currently being displaced with nitrogen. This process is almost complete from California to the New Mexico/Texas border. The section of the pipeline from which the crude oil has been displaced will be filled with nitrogen gas at a pressure of 50 to 100 psig.

The pipeline will not be returned to crude oil service. It is anticipated that in the near future this portion of our pipeline will be sold. It is likely that the pipeline at some point will be returned to service most probably as a natural gas pipeline, but at this time that is not known with certainty. It is also likely that all of the station equipment, piping, and tanks associated with crude oil transportation will be removed from the Cadiz Station.

B1-2

We thought you should have this information to update your project Draft EIR/EIS. If you have any questions or would like to discuss this change further, please give me a call, (661) 664-5345.

B1-3

Sincerely,

Jordan Janak
Director, Regulatory Compliance

cc: M. Olson
R. Gilbert
S. Madden
T. Webb
H. Cordova

10000 Ming Avenue (93311) • P.O. Box 40160 • Bakersfield, CA 93384-0160 • (661) 664-5300

Date:		Time:	11:23 AM
Pages:	2	Duration:	0 min 45 sec
Sender:		Company:	
Fax Number:		Subject:	
Type:	Fax		

Jan-03-00 12:22pm From- T-466 P.01/02 F-912

B2

National Chloride Company of America

Producers of Liquid Calcium Chloride

Field Operation — Amboy, California
General Office:
P.O. Box 604, Norwalk, California 90651
Telephone: Area Code 562 - 926-3712
FAX 562-404-2195

RECEIVED
00 JAN -3 AM 8:22
BUREAU OF
LAND MANAGEMENT
NEEDLES RESOURCE AREA
NEEDLES, CA

December 26, 1999

Bureau of Land Management
Needles Field Office - Spikes Rd.
Needles, California

Attention: Mr. Ken Downing
Reference: Cadiz Valley/MWD Joint Venture

Dear Mr. Downing :

This will report, as requested, on the four (4) volume, highly detailed work setting forth the joint venture of the Metropolitan Water District and Cadiz Land Water Stowage/Water Release program. B2

The National Chloride Company does not view the program as being injurious to National Chloride or its neighbors in the future; however, it does believe good operating practice should require that when and if MWD pumps out more water than it brings into the area, said overdraft must be replaced by the MWD/Cadiz Land Joint Venture. We believe controls of this type should be implemented. B2

Sorry for the delay in making this response, but the flu bug put me out of action for a while. B2

Sincerely,

Tom Beeghly

Tom Beeghly, President

Silver Valley Realty

NAL TRAILS HIGHWAY
SPRINGS, CA 92365

Fred Stearn, Broker

(760) 257-3560

B3

December 11, 1999

Mr. Jack Safely, P.E.
Metropolitian Water District
Water Resource Management Group
POB 54153
Los Angeles, CA 90054-0153

SUBJECT: COMMENTS ON CADIZ GROUNDWATER STORAGE AND DRY-YEAR PROGRAM DRAFT EIR/EIS

1--Of the $150 million cost of the proposed project, how much could be saved by building the well field and settling ponds immediatedly adjacent to the existing supplier aquaduct? B3-1

2--Why can't the project pipeline be made shorter by using BLM land further south in the same water basin? B3-2

3--Was every water basin underlying the existing supplier aquaduct considered as a possible alternative, and if not, why not? B3-3

4--On page 5-91 the EIR/EIS states that water extraction operations impacts on Chambless is addressed in detail in the following paragraphs. But I don't see any details on that subject in the following paragraphs. B3-4

5--How do measured depth to groundwater for wells in Chambless today, compare with measurements taken in the early years of this century? B3-5

6--If Cadiz Land Co. goes bankrupt, how might that impact this project proposal, during or after construction? B3-6

7--Can you please send me the technical report on water resources associated with this EIR/EIS? B3-7

Thank you very much. B3-8

Sincerely,

Fred Stearn

CLAYPOOL'S True Value HARDWARE STORES HARDWARE
725 Broadway • Needles, California 92363 • Phone (760) 326-2110 • FAX (760) 326-2884

December 11, 1999 BH

I would like to strongly support the water storage project proposed by the Cadiz Land Company and the M.W.D.

Although I am a 20 year member of the Needles Utility Board, this recommendation is mine as an individual, as the City has yet to discuss their official position.

Due to over 20 years of study and working in regard to water for the City of Needles, I am a lay-expert on water in this area. I have a large library with information on the Colorado River and the Mojave Desert, and have spent years being involved. My business interests over the years has included Needles, Blythe and the Imperial Valley in California, and Parker, Bullhead City and Lake Havasu City in Arizona. I have served on various committees for the Interior Department in regard to land use and water issues. I served over 20 years on the Needles Unified School District Board, and an area that included the Cadiz area and much of the MWD aquaduct.

I do feel I am somewhat an expert on the issues involved, and I am strongly in favor of the project.

Attached is a document explaining the hugh cost to the City of Needles if California cannot get their use of Colorado River water down to their alloted 4.4 million acre-feet, and therefore lose the use of Surplus Water from the River.

Underground storage in the desert has provern to be a logical system, and is being used in many areas in Arizona. Arizona is presently storing water for Nevada and Las Vegas in underground basins along their C.A.P. Canal, and not unlike the present proposal.

The proposal also includes the selling of some groundwater to M.W.D. in years of drouth. Although this sounds bad to we who lives in the desert, Cadiz Land Company owns this water and it is theirs to sell. They also are at the tail end of a large drainage area, and their sale of water will not take water from any upstream users (of which there are presently none.

Their drainage area is separated from our Piute Drainage area, and no City of Needles water is involved.

There is also a very good reason why Cadiz will never overdraft the basin in selling some water to M.W.D. It is the fact that their basin is adjacient to the Bristol dry lake. This lake is very salty and Leslie Salt Company has long had a plant there that produces much

to sell. If the Cadiz Land Company pumps too much water and
s their water table, salt water from Amboy will enter their basin
uin not only M.W.D.s water, but the water used on their valuable
ng lands. They will lose millions in investment if they
pump.

oth M.W.D. and Cadiz Land Company are very knowledgable and
class operations - and they will not ruin their future by over
ng water from their closed water basin. B4-1

lthough myself and the City of Needles have had our arguments
st with the M.W.D. they have helped us in obtaining legal water
the Colorado, and we may need them again if the lining of the
merical Can eliminates our project to salvage water that
esently leaking. We need friends like the M.W.D.

gain, I strongly support the proposed project, and know that it
not hurt our environment.

Very truly yours,

Wm Claypool

W. M. Claypool III
212 H Street
Needles, California 92363

WILLIAM MCCAY
212 H ST.

Refer to comment
B4-1

**OF NEEDLES' STAKE IN CALIFORNIA BEING ABLE TO LIVE WITHIN THEIR 4.4 MILLION ACRE-FEET P
R FROM THE COLORADO RIVER.**

USE OF WATER FROM THE COLORADO RIVER IS LEGALLY DETERMINED BY THE LAW OF THE RIVER. THE MAY NOT MAKE SENSE TO PEOPLE IN NEEDLES, AND IT ISN'T 100% FAIR NOR DOES IT MAKE SENSE - BUT IT VERY IMPORTANT LAW THAT HAS BEEN DEVELOPED OVER YEARS, AND THE SUPREME COURT HAS PUT ITS MP UPON IT.

UNDER THIS LAW, CALIFORNIA HAS A RIGHT TO 4.4 MILLION ACRE-FEET PER YEAR FROM THE RIVER, ONE HALF OF ANY SURPLUS.

EACH GOVERNMENTAL UNIT IN CALIFORNIA IS ALLOTED PART OF THIS 4.4 MILLION, AND IT IS TROLLED BY THE COLORADO RIVER BOARD OF CALIFORNIA.

DUE TO LACK OF NEEDED ACTIONS IN YEARS PAST, THE CITY OF NEEDLES WAS ALLOTED ONLY 950 E-FEET OF PRESENT PERFECTED RIGHTS BY THE SUPREME COURT IN CALIFORNIA VS. ARIZONA. AND AT THE THE CITY WAS PUMPING ABOUT 3,500 ACRE-FEET A YEAR.

THE CITY ARGUED THAT THEY WERE PUMPING ONLY GROUND WATER, AND UNDER CALIFORNIA LAW THEIR WATER, AND WE USED CHEMICAL ANALYSIS TO PROVE OUR CASE. THE SUPREME COURT HAD RULED ONCE GROUNDWATER COMINGLES WITH MAINSTREAM WATER THAT IT WAS 100% MAINSTREAM. T THE SUPREME COURT RULES IS LAW - SO THIS MEANS THAT ALL OF THE CITY WELLS ARE PUMPING ONLY LLY MAINSTREAM WATER.

AND AS WE ALL ARE AWARE, THE TIME WILL COME WHEN THE BUREAU OF RECLAMATION WILL BE ED TO SHUT DOWN ALL WELLS USING COLORADO RIVER WATER ONCE THEY HAVE USED UP THEIR LEGAL TMENT FROM THE RIVER.

UNLESS OTHER LEGAL WATER WAS FOUND, THIS MEANS THAT SOMETIME DURING MARCH OF EVERY THE CITY OF NEEDLES WILL BE OUT OF WATER UNTIL THE END OF THE YEAR. THIS WILL KILL OUR CITY.

ALMOST 10 YEARS WAS SPENT FINDING LEGAL WATER AT A PRICE THE CITY COULD AFFORD. THE FIRST K CAME WITH A SURPLUS WATER CONTRACT WITH THE BUREAU OF RECLAMATION FOR UP TO 10,000 -FEET, AND AT A COST OF ONLY 25 CENTS PER ACRE-FOOT. SURPLUS WATER HAS BEEN AVAILABLE AS THE R STATES HAVE NOT BEEN USING THEIR FULL ALLOTMENT, AND THIS WILL CONTINUE FOR SOMETIME IN UTURE.

THE SECOND SOURCE OF LEGAL WATER WAS A PROPOSAL DEVELOPED BY THE M.W.D., THE COLORADO R BOARD OF CALIFORNIA, THE BUREAU OF RECLAMATION AND CONGRESSMEN JERRY LEWIS. IT IS A EWHAT COMPLICATED SYSTEM OF RECOVERY OF COLORADO RIVER WATER THAT HAS LEAKED OUT OF THE NED ALL AMERICAN CANAL AS IT PASSES THROUGH IMPERIAL VALLEY.

THE PROGRAM CONSISTS OF:

1. THE BUREAU OF RECLAMATION HAS DRILLED WELLS ADJACENT TO THE ALL AMERICAN AL, AND ARE ON STAND BY FOR PUMPING RECLAIMED WATER FROM THE UNDERGROUND WHEN NEEDED BY CITY OF NEEDLES. THIS WATER WILL BE PUT BACK INTO THE CANAL. THIS IS "NEW" WATER AS IT HAS ADY BEEN CHARGED AGAINST CALIFORNIA'S 4.4 MILLION ALLOTMENT.

2. THE COACHELLA VALLEY WATER DISTRICT (CVWD) HAS, IN TURN, AGREED TO ACCEPT THIS AIMED WATER AS PART OF THEIR ALLOTMENT FROM THE COLORADO RIVER.

3. THE CITY OF NEEDLES, IN TURN, IS ALLOWED TO PUMP THIS AMOUNT OF WATER VIA THEIR LS OF COLORADO RIVER WATER.

Refer to Comment 54-1

4. THE COST TO THE CITY IS THE COST OF OPERATING THE PROJECT, AND IT IS ESTIMATED APROX. $40.00 PER ACRE-FOOT. THIS IS COMPARED TO THE COST OF $200 TO $400 PER ACRE-FOOT PAID BY MEMBERS OF M.W.D.

CALIFORNIA'S SHARE OF SURPLUS WATER

THE SUPREME COURT GAVE CALIFORNIA 4.4 MILLION ACRE-FEET OF COLORADO RIVER WATER PL HALF OF THE SURPLUS. THE STATE, HOWEVER, HAS BEEN USING AT LEAST 4.8 MILLION ACRE-FEET.

NOW THAT THE UPPER BASIN STATES ARE USING MORE, AND THE C.A.P. PROJECT HAS ENABLED A TO USE THEIR FULL 2.8 MILLION ACRE-FEET, AND FAST GROWING LAS VEGAS IS USING THEIR FULL 300,000 ACRE-FEET, CALIFORNIA IS BEING FORCED TO GET BACK TO THEIR LEGAL 4.4 MILLION ACRE-FEET.

TO FORCE CALIFORNIA TO DO SO, INTERIOR SECRETARY BRUCE BABBITT HAS RULED THAT UNLES CALIFORNIA GETS WITHIN THEIR 4.4 MILLION ALLOTMENT, HE WILL TAKE AWAY THEIR SURPLUS WATER AND HE HAS THE LEGAL RIGHT TO DO THIS.

THE PROPOSED CADIZ/MWD PROJECT IS A MAJOR STEP TOWARD CALIFORNIA GETTING WITHIN TH MILLION ACRE-FEET LIMITATION.

COST OF LOSS OF SURPLUS WATER

IF CALIFORNIA CANNOT LIVE WITHIN THIS 4.4 MILLION ACRE-FEET THE CITY OF NEEDLES WILL LO SURPLUS WATER, AND WE WILL HAVE TO REPLACE THIS WATER WITH WATER FORM THE ALL AMERICAN PROJECT. IF THIS HAPPENS OUR COST WILL BE:

3,000 ACRE-FEET AT $40.00	120.000.00
3,000 ACRE-FEET AT 25 CENTS	-750.00
ADDED COST PER YEAR	119,250.00

THE CITY OF NEEDLES IS PRESENTLY HAVING FINANCIAL PROBLEMS, AND THIS ADDED $119,250.00 YEAR COULD BE THE STRAW THAT BREAKS THE CAMEL'S BACK. AND IF WE ARE NOT ABLE TO PAY THE $119,250.00 THE BUREAU WILL BE FORCED TO SHUT DOWN OUR WELLS, AND NEEDLES WILL BE DEAD.

Tate & Associates

16530 31st Drive SE
Bothell, WA 98012
Voice: (425) 481-8756
Fax: (425) 481-5233
E-mail: state@state.seanet.com

February 21, 2000

Mr. Dirk Reed, Project Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, CA 90054

B5

Dear Mr. Reed,

I am writing on behalf of the Arizona & California Railroad regarding the Cadiz Groundwater Storage & Dry-Year Supply Program Environmental Impact Statement. We have read the EIS and would like to make known a number of concerns the line has regarding the impacts the proposed pipeline will have on the line's business and track. Those concerns specific to the line include: B5-1

1. Increased maintenance cost to the line. B5-2

On page 5-133 under the heading Rail Transportation the EIS reads as follows "To ensure that disruption of rail service due to liquefaction...does not occur, a Groundwater Monitoring and Management Program will be established". Further its is established elsewhere in the EIS that subsidence caused by liquefaction might be as great as almost 2' feet at some locations.

It is important that the monitoring system be tied into the railroad's operating center and that regular monitoring reports be provided to the railroad's engineering department. Even changes in track elevation as small a 3 inches can require expensive reballasting and retamping of track for a considerable distance on either side of the affected area. The project must provide some guaranteed method of reimbursing the railroad should track realigning be required due to project-related elevation changes.

2. Pipeline crossing of railroad. B5-3

An easement agreement and approved plans to cross the railroad right-of-way with the project pipeline must be agreed upon. In addition to an engineering and construction plan approved by the railroad, the railroad will require certain safety measures during the survey and construction process including flagging and coordination with train schedules.

If you have any questions of comments I may be reached at (425) 481-8756.

B5

Stephen M. Tate

Stephen M. Tate
Principal Tate & Associates
On behalf of the ARZC

C.c. David Parkinson
John Scott

S F PACIFIC PROPERTIES INC.

B6

March 8, 2000

VIA HAND DELIVERY

Mr. Jack Safely
Project Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, CA 90054

VIA FACSIMILE (909-697-5299) AND CERTIFIED MAIL

Mr. James Williams
Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714

Dear Sirs:

This letter is submitted on behalf of SF Pacific Properties Inc., a Delaware corporation and owner of substantial amounts of land throughout California, including the Mojave Desert area. SF Pacific owns approximately 160,000 acres in the vicinity of the facilities to be included in the proposed Cadiz Groundwater Storage and Dry-Year Supply Program. B6-1

We have reviewed the Draft Environmental Impact Statement and Draft Environmental Impact Report ("Draft EIS/EIR"). We recommend further off-site mitigation property in the Fenner, Cadiz, and Bristol Valleys in addition to the mitigation measures and project design features described in the Draft EIS/EIR. B6-2

We are also aware of the hydrological issues associated with the project raised by the U.S. Geological Survey ("USGS") in its "Review of the Cadiz Groundwater Storage and Dry-Year Supply Program" dated February 23, 2000, and additional issues raised by the County of San Bernardino, in its "Report/Recommendation to the Board of Supervisors of San Bernardino County, California and Record of Action" dated March 7, 2000, and others. We believe that the issues raised by the USGS, the County, and others warrant further evaluation in a recirculated, supplemental draft EIS/EIR. B6-3 B6-4

Like many other California businesses, we believe that a secure and reliable source of water is a cornerstone piece in the economic stability of not only San Bernardino County, but the entire Southern California region. It is our belief that the groundwater storage programs can help support the region's overall objective of maintaining a secure and reliable water supply. B6-5

Thank you very much for the opportunity to comment on this project. B6-6

Sincerely yours,

SF PACIFIC PROPERTIES INC.

By _____
James J. Eisen
Vice President

201 MISSION STREET, 2ND FLOOR, SAN FRANCISCO, CALIFORNIA 94105 (415) 974-4500 FAX (415) 974-4687

** TOTAL PAGE.02 **

Faxed at 10 am

G1

FAX COVER SHEET

To: Mr. Jack Safely

Fax #: (213) 217-6119 Phone #:

From: Helen Wagenvoord

Fax #: (510) 839-9926 Phone #: (510) 839-9922

Pages: 2

Mr. Safely:

Attached is a letter requesting an extension of the comment deadline on the environmental impact report/environmental impact statement regarding the establishment of the Cadiz Groundwater Storage facility. Thank you for your consideration of this request. We look forward to your prompt response.

G1-1

National Parks Conservation Association
1300 19th Street, NW, suite 300
Washington, DC 20036

www.npca.org

NATIONAL PARKS CONSERVATION ASSOCIATION
THE NATURAL RESOURCES DEFENSE COUNCIL
THE WILDERNESS SOCIETY

February 14, 2000

Mr. Jack Safely
Metropolitan Water District of Southern California
Post Office Box 54153
Los Angeles, CA 90054-0153

RE: Cadiz Groundwater Storage Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) - Request for extension of comment period

Dear Mr. Safely:

We are contacting you to request an extension of the comment deadline on the environmental impact report/environmental impact statement regarding the establishment of the Cadiz Groundwater Storage facility. The proposed project is of great concern to our groups. It has the potential to have irreversible impacts to several important resources on both Bureau of Land Management and National Park Service lands. Potentially impacted resources include:

- regional plants and wildlife, including the bighorn sheep
- groundwater and surface water quality and supply
- air quality
- the protection of the natural resources of Mojave National Preserve
- critical habitat for the threatened desert tortoise
- federally designated wilderness

Because of the length and complexity of the document, and the serious significance of its potential impacts to federally protected resources, we respectfully ask for a 30-day extension of the comment period to provide us with sufficient time for thorough review and analysis of the EIR/EIS.

Thank you for your consideration of our request and we look forward to your prompt response.

Sincerely,

Helen Wagenvoord

Helen Wagenvoord
Associate Director
National Parks Conservation Association
(510) 839-9922

Johanna Wald

Johanna Wald
Director, Land Program
The Natural Resources Defense Council
(760) 647-1614

Sally Miller

Sally Miller
Regional Conservation Representative
The Wilderness Society
(760) 647-1614

cc: Tim Salt, Desert District Manager, Bureau of Land Management
Molly Brady, Needles Field Office Manager, Bureau of Land Management

MBCA

Morongo Basin Conservation Association, Inc.

POSTOFFICE BOX 218 TWENTYNINE PALMS, CALIFORNIA 92277

February 18, 2000

G2

Metropolitan Water District
Water Resource Management Group
P. O. Box 54153
Los Angeles, CA 90054-0153
Attention:
Mr. Dirk Reed (213) 217-6163
✓Mr. Jack Safely (213) 217-6981

Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714
Attention:
Mr. James Williams (909) 697-5390

RE: Draft EIR/EIS Cadiz Groundwater Storage and Dry-Year Supply Program

As stated within the Draft EIR/EIS, the purpose and scope of the documentation is to provide public agencies and the general public a detailed project description and analysis for evaluation of the potential environmental impacts and mitigation measures for the proposed project. G2-1

Due to the massive volume of the report, the analysis and evaluation done by members of the Morongo Basin Conservation Association (MBCA) identified issues we consider vague, not addressed or possibly overlooked. Accordingly, we request a Supplement to the EIR/EIS be issued that will respond to concerns already received, special emphasis placed to detailing the Groundwater Monitoring & Management Plan (WR-1) plus our particular concerns listed below. Distribution of the Supplement would provide information for agency and public comment relative to the potential or actual environmental impacts. G2-2

I. How was Metropolitan Water District of Southern California (Met), a proponent, chosen to be the California Environmental Quality Act (CEQA) Lead Agency and approving authority when the project is located in non-Metropolitan water districts? G2-3

II. Taking into consideration our understanding that California law allows an owner of land over a basin to pump water for the reasonable and beneficial use on his property, what is the rationalization that water in the Cadiz project can be for Met use? G2-4

III. Please provide the following information in the Supplement: G2-5

How were the water rights for the Colorado River allocated in the past, including Mexico?
Are there projected changes to this allocation over the life of the project -- 50 years? G2-6
What are the potential needs of and impacts on non-Cadiz desert water areas as well as other states with water rights? G2-7

IV. Figure 2-2, Metropolitan Member Agencies, is illegible and therefore cannot serve as an information document. Replacement is requested. G2-8

V. Considerable verbiage was included in the EIR/EIS relative to conservation methods used or to be implemented by Metropolitan. Specifics appear to be missing. It is our G2-9

hope and desire that desert community standards and limitations on water conservation will be met and exceeded wherever possible. Of the enhanced water conservation programs covered, what is the time line for implementation, how are or will these practices be enforced, and discuss the current or future status of:

G

Water meter limitation
Building restriction(s)
Car washing restrictions
Pricing increments when average residential consumption is exceeded.

Are financial incentives for conservation beyond those offered to Met member agencies available to any other customers? If not, are any planned with a firm or projected implementation date? G2

What is the status of public information, education and major media campaigns as a result of Met's urging water conservation? G2

At what stage is implementation relative to residential retrofit, home audit, leak detection, and landscape water audit programs? G2

VI. Reference Page 5-4, Report No. 1157: G2

Williamson Act Contracts Lands

There are no Williamson Act contract lands in the Cadiz Project area.

What are Williamson Act contract lands? Please include a definition in the Supplement along with the affect or relationship to the storage project.

VII. Is there a purchase requirement for comparable parcels of land in exchange for biologically sensitive parcels that will be affected by the project? If so, include the status of the exchange.

VIII. Due to the unknown status of WR-1, and our subsequent opportunity to comment being unknown at this time, here are some concerns we ask be considered for incorporation in the plan, and as appropriate, inclusion in the Supplemental EIR/EIS:

Of primary concern to WR-1 is a commitment regarding the quantity of water taken from storage and that Metropolitan will not transfer more than the annual storage input. Please provide your position and how WR-1 will monitor the process.

Is it known how much of the aquifer water is fossil and how much is recharge water?

How can the public be assured the lower limits of the recharge estimates will not be exceeded to preclude overdrawing of the aquifer?

Will there be a definite depth limit to which the aquifer will be drawn? Will it be the top of the aquifer? How many wells will be used for monitoring and how will they be selected?

If the saline migration from Cadiz Dry Lake shows movement toward Cadiz desert land, will pumping cease until the aquifer recharges enough to stop the migration? Please include in your discussion and plan how this monitoring will be done. G2-19

What are the built-in factors (triggers) that would stop this project temporarily and/or permanently? Will these triggers be in place at the beginning of the project? If not, when will they be placed? Once the triggers are in place, are they changeable or unchangeable? What authority would have power to make changes? G2-20

With the many opportunities for toxic pollution along the course of the Colorado River, what monitoring methods will be devised to analyze future potential constituents in the river, i.e., toxins, radioactivity, etc.? Subsequently, what control methods would be used? G2-21

Are there conditions whereby water will be transferred on an emergency basis? If so, please explain. G2-22

It is assumed Met, BLM, Cadiz, county representatives, and water agency members are/were part of the WR-1 oversight committee. Please identify the committee used in planning to date. If not included now, we ask your consideration for the following representation: G2-23

Representative from a desert water district, non-MWD,
County Flood Control Department,
Civic representative from a desert community, to be chosen by lot, and
A member of a local or specific desert environmental group.

Will the composition of the WR-1 committee remain constant? Is there time for the additional requested personnel to participate if planning is not complete? We request these additional participants be full members with voting privileges. If prohibited by law, we request they be ex officio members with full access to all meetings and information involving the committee. G2-24

Please provide information on public meetings held by the committee. Examples: How often will they meet, will meetings be rotated to different locations, etc.? Will the public be invited to meetings and given the opportunity to comment? G2-25

We ask you to include all other known facts of this nature to allow the public to participate. G2-26

Please contact me at 760 367-7004 if you have questions regarding these comments G2-27

Sincerely,

D. J. Masker
Director

CALIFORNIA FARM BUREAU FEDERATI
EXECUTIVE OFFICES
2300 RIVER PLAZA DRIVE. SACRAMENTO. CA 95833-3239 · PHONE (916) 561-5520 · FAX (916)

February 22, 2000

VIA FACSIMILE AND REGULAR MAIL

G3

Mr. Jack Safely, Project Manager
Metropolitan Water District
P.O. Box 54153
Los Angeles, CA 90054

Re: Comments on the Cadiz Groundwater Storage and Dry-Year Supply Program

Dear Mr. Safely:

The California Farm Bureau Federation ("Farm Bureau") represents 85,000 farmers and ranchers, who constitute approximately 80 percent of production agriculture, statewide. As the development of the Cadiz Groundwater Storage and Dry-Year Supply Program ("Cadiz") is one of the early projects of this size and scale in California, the Farm Bureau appreciates this opportunity to comment.

In order to meet our state's increasing need for water, the Farm Bureau supports the further development of California's water resources. We also recognize groundwater banking i one critical component of California's ability to meet its long-term water needs. We believe projects similar to Cadiz should be encouraged, as the state's water crisis cannot be solved without the construction of new water storage facilities and related infrastructure.. In this regarc we are mindful that each project must be evaluated based on individual merit and community acceptance. The fact of Cadiz' individual ownership of the land and resolution of any water rights issues in advance persuade us of the merits of this project.

The Farm Bureau particularly appreciates efforts undertaken by the Bureau of Land Management and the Metropolitan Water District of Southern California ("Lead Agencies") to minimize third party impacts to agriculture and nearby communities. We would like to be kept apprised of this project as it develops, since proper implementation of the associated Groundwater Monitoring and Management Plan will be an important factor in the future succes of Cadiz.

The Farm Bureau supports the Lead Agencies' hard work and innovation in seeking locally driven solutions to California's water crisis.

Sincerely,

Bill Pauli

BILL PAULI
President

cc: Keith Brackpool, CEO
Cadiz, Inc.
Ron Gastelum, General Manager
Metropolitan Water District of Southern California

CNRCC DESERT COMMITTEE

Elden Hughes
14045 Honeysuckle Lane
Whittier, CA 90604
February 25, 2000

G4

Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054
Attn: Dirk Reed

Bureau of Land Management
6221 Box Springs Blvd
Riverside, CA 92507
Attn: Mr. James Williams

Reference: DEIR/DEIS Cadiz Groundwater Storage and Dry-Year Supply Program

It is our understanding that additional information on groundwater recharge data is contained in a USGS report on the project. We further understand that the report challenges recharge models and assumptions used in the DEIS/DEIR. These are important considerations.

We understand that the report in final form is in the hands of the BLM, but that the agency will not make a decision until next week on whether the report will be made available to use. Next week is too late for proper consideration and if the answer is to not make it available, then the Freedom of Information processes are time consuming.

G4-1

This is a formal request for a 90 day extension on the comment period.

G4-2

Sincerely,

Elden Hughes
Chair
Sierra Club
California/Nevada Desert Committee

SIERRA CLUB
FOUNDED 1892

CALIFORNIA / NEVADA REGIONAL CONSERVATION DESERT COMMITTEE
Protecting the Desert

>?>

SIERRA CLUB
FOUNDED 1892

Metropolitan Water District of Southern California
Post Office Box 54153
Los Angeles, CA 90054-0153

G5

ATTN: Jack Safely

Dear Mr. Safely:

We are writing to address some of the problems related to the "Cadig Groundwater Storage and Dry Year Supply Program" which does not appear to be resolved by the EIR put forward in November, 1999. G

We believe that a supplemental EIR should be provided which will give much needed enlightenment on the following questions: G

First, of up to 1,000,000 acres-feet of stored water, how much can actually be retrieved for use in subsequent dry years with particular reference to evaporation losses? G

Second, where is the Colorado River water going to come from for the 35 years of this project after 2015 when disbursement switches to the control of the Secretary of the Interior? G

Third, how did the project come up with the figure of 30,000-acre feet per year as a sustainable annual groundwater removal amount when more recent estimates (USGS Report) show a much lesser figure? G

Fourth, why is there no comprehensive groundwater monitoring plan with agency and public oversight which includes both agricultural usage and project usage so a sustainable regime can be maintained? G

Sincerely,

Michele Perrault
International Vice President
Sierra Club
85 Second Street
Second Floor
San Francisco, CA 94105-3441

The mission of Desert Survivors is to experience, share and protect the desert, a beautiful, fragile and threatened environment deserving of respect and requiring constant vigilance.

DESERT SURVIVORS
experience share protect

Bob Ellis
Cadiz Groundwater Task Force Chair
Desert Survivors
P.O. Box 20991
Oakland, CA 94620-0991
(510) 525-8742

3/5/00

G6

Jack Safely
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

James Williams
Bureau of Land Management
6221 Box Springs Boulevard
Riverside, CA 92507-0714

RE: **Cadiz Groundwater Storage and Dry-Year Supply DRAFT EIR/EIS Comments**

Dear Sirs:

Thank you for the opportunity to comment on the Cadiz Groundwater Storage and Dry-Year Supply Project Draft Environmental Impact Statement. G6-1

Desert Survivors is an environmentally-oriented organization of people interested in the conservation of desert and arid areas in California and Nevada. Our focus is to educate people about desert and arid area protection issues by leading trips, publishing informational materials and working with public land managers and advocates to protect and conserve our rapidly vanishing natural areas. We long been involved in California desert protection issues working for passage of the California Desert Protection Act and commenting on numerous management actions in the various BLM resource areas. We have led hikes across the Sheephole and Cadiz Valleys and into the Old Woman Mountains and Trilobite Wilderness Areas. The BLM's California Desert Conservation Area lands are very important to our group. We have walked the ground, we have beheld the views, we have been awed by the vast open spaces of this complex of desert valleys and surrounding mountains. We are an interested party and a staunch defender of its natural values. We look forward to the BLM stepping up to its responsibility as protective steward of these lands. This area is worth saving in its undeveloped state for the benefit of future generations.

Desert Survivors members in cooperation with the Desert Trail Association have spent a great deal of time exploring a hiking route across the desert lands of California, Nevada and Oregon from the Mexican border to the Washington state border. The Desert Trail route comes north from Joshua Tree National Park, up Sheephole Valley, over the Calumet Mountains, across Cadiz Valley and on north to the Trilobite Wilderness, the Granite Mountains and the Mojave National Preserve. The route across this vast valley was chosen because of the few human impacts on the land. Desert Survivors strongly urges the BLM to protect the primitive character of this area.

As former Communications Director for Desert Survivors and as a current Board member and desert backpacking leader, I have written about this area in our quarterly journal, *The Survivor*, as well as been in contact with numerous people and groups who have an interest in preserving this undisturbed land both for environmental and primitive recreational purposes. I have made two trips to the area in the past two months to refresh my past impressions of the Cadiz project area and so I could contrast this recent personal experience with the descriptions in the Draft EIR. I have come away with strengthened attachments to this land and an intensified interest in its preservation. As Director-at-Large and Chairman of the Cadiz Groundwater Task Force of Desert Survivors I am glad to be able to represent our group in presenting these comments to you.

Significant New Information of Sustainable Groundwater Yield Now Available
The Cadiz Groundwater Storage and Dry Year Supply Project as described in the EIR is really a marriage of two separate water proposals. The Cadiz Water Storage and Retrieval Project and the Cadiz Native Groundwater "Transfer" Project. The EIR states that up to 2 million acre-feet of native groundwater could be pumped from the basin. This is apparently based upon an assumption of an annual sustainable yield of 40,000 acre-feet for the project lifetime of 50 years. Elsewhere in the EIR the figure of 30,000 acre-feet per year is declared to be the sustainable yield. Two new technical reports from reputable sources have become available which call into question the groundwater figures presented in the EIR. The US Geological Survey review and a special study done for San Bernardino County both declare the true yield to be much lower (in fact lower than the present day pumping by the Cadiz agricultural operation). They also declare that the methods used by the project proponents are incorrect. This "significant new information" would seem to completely remove any potential for native groundwater "transfer" by the project.

New EIR or Supplemental EIR Required
Under present NEPA practice when "significant new information" arises the responsible agency must issue a new revised EIR or issue a supplemental EIR taking into consideration the affect of the new information. In the case of the groundwater recharge and yield figures this new information must be integrated into a revised project EIR for further public review and comment.

Desert Survivors Supports the NO ACTION Alternative. It is possible that a well thought-out and fully studied proposal for a sustainable groundwater storage and retrieval project could be supported by Desert Survivors. This project as presented in the EIR is NOT such a project. The Draft EIR/EIS does not present sufficient information to understand the short and long term environmental impacts for any of the action alternatives presented. The EIR/EIS DOES present

sufficient information to show that a storage and retrieval proposal in this area is very complex. It has significant environmental impacts, many of which are not revealed by this proposal. Without this information the NEPA process is not full-filled. No utility corridor can be granted. No right of way over public lands can be granted. As it stands we have no choice but to ask that the No Action Alternative be selected. We feel you have no other alternative given your legal mandate to manage these lands in a sustainable fashion for the future. The new groundwater technical reports professionally present the concerns with the issue of basin recharge and groundwater yield in the retrieval area. However there are many other aspects of this project which we find alarming . Below are a series of significant concerns Desert Survivors has with the Draft EIR/EIS. Some are suggestions for additional required information in a new DEIR if you choose to proceed with this project.

G6-4

MAJOR POINTS OF CONCERN

Failure of the BLM to Involve Itself as an Land Owner Affected by Groundwater Use
Perhaps our concerns here are unjustified. Perhaps even now the BLM is preparing a strong defense of the interests of the land owner with the most to lose by not participating in the division of the Fenner-Bristol-Cadiz groundwater "spoils." California water law allows the adjoining owners of the surface lands above a groundwater basin to determine the acceptable impacts on each other of groundwater usage by one or all of them. In California urban coastal groundwater basins an adjudicated agreement under the review of a judge is often necessary to ensure at least a somewhat orderly distribution of the available groundwater. In the last few years Cadiz has bought out most adjoining private land owners, including Catellus, and has initiated land swaps with the BLM itself to amass a contiguous number of sections of land ostensibly for the purposes of expanding the agricultural operation. Now in a five mile radius of the project area the only landowners are Cadiz and the BLM.

G6-5

Why has not the BLM worked out appropriate agreements with the proponents of this project which protect the public's long-term interest in these desert lands? Can it be that the BLM does not feel that there is no significant impact in a drawdown of almost two hundred feet and a land subsidence of almost two feet? Can it be that the BLM feels that the short-term overdrafts will all gradually work out over a hundred years or more and the lands need no defense or further monitoring than this EIR indicates?

No, certainly not. The BLM, I guess, is considering itself as just another entity who must react and comment on this EIR just as any other member of the public. No doubt they will submit documentation to the comment process expressing exactly these concerns. No doubt they have their solicitors gearing up for a letter of concern and an impending law-suit so that the proper California-type adjudication of this basin's resources will occur.

What is the BLM's Role?
The BLM's, role as expressed in the EIR, is simply that of a party sitting on the side who happens to have the ability to grant a right-of-way. There is no role expressed for the BLM as landowner of most of the land affected by the project. This is not right. Lets be out front. The BLM should

G6-6

be sitting at the table as an impacted party representing we, the public's, lands. I guess the traditional way for the BLM to express itself would be to deny the right-of-way for reasons having to do with the right-of-way's impact rather than what might be the real reason, a concern about groundwater overdraft. If there were no right-of-way needed, would the BLM intervene as a land-owner with groundwater rights? Did they in the Hayfield project? It is difficult for us, as environmental advocates, to address ourselves to the Metropolitan Water District on these issues. We urge the BLM to take a pro-active role as a land-owner in defense of the long-term groundwater rights of public lands in ALL projects of this nature.

Failure to Provide a Regional Basin-wide Groundwater Monitoring Plan.
The Metropolitan Water District has expressed a commitment to conform to Best Management Practices and to not withdraw native groundwater above a determined "sustainable" level. Assuming that this promise is serious, there should be no objection to the establishment of a mandatory basin-wide monitoring system of reporting and monitoring which can be reviewed by a board with public representation. This is the type of system which is becoming necessary for the more over-drawn basins near the urban California coast. In order to prevent this desert area from receiving the impacts of un-regulated groundwater overdrafts, a strict monitoring, reporting, and oversight regime is required. The Met staff, when asked about this, said that some level of plan was being developed. Well, if so, it must be described in sufficient detail in the EIR to allow the public to feel confident that the resources of the public lands are going to be protected.

Failure to Provide Estimates of the Percentage of Stored Water Actually Retrievable
The EIR contrasts the groundwater storage and retrieval plan with the above ground open reservoir method of water storage. It cites a figure of approximately 22 percent evaporative loss from the Colorado River area dammed lakes. No figures are given for reservoirs near the coast. There is an estimate that about 2 percent of the ponded water to be stored for the Cadiz project will be lost through evaporation but there are no figures regarding the actual projected estimates of how much of that stored water can actually be retrieved. All EIR scenarios use the term "cycled" water to depict the portion of water stored and retrieved. All EIR scenarios indicate 100% of the stored water is accounted as retrieved. This is plainly wrong; the non-retrievable portion is added to the allowed "transfer" of native groundwater and further inflates the proposed output of this system in vast excess of sustainable levels.

In addition to the evaporative losses (which can happen multiple times if the mound of stored water is pumped and re-ponded to reduce disbursement loss), a significant amount of this stored water will make its way into the Bristol and Cadiz Dry Lakes. The EIR shows charts which indicate increase in water table levels in both dry lakes. This is the result of stored water migrating both with the existing gradient as well as the increased mounded gradient caused by the percolated storage. The longer the period of storage the greater the percentage of stored water lost to the dry lakes.

Reasonable estimates of the percentage of stored water actually retrievable for varying periods of storage are necessary to make any real determination of the validity of this type of storage verses traditional reservoir storage. We need to be able to see if the inevitable environmental impacts of

this process really are worth it. This is especially necessary if it is true that the current agricultural usage already draws out all or most any native groundwater available at a sustainable rate. G6-8

Failure to Provide an Alternative which Draws Water from the Upper Aquifer
All the groundwater information agrees on two things: 1) There is some understanding of the movement, age, percolating dynamics, and recharge groundwater in the UPPER level alluvial aquifer. 2) The movement and recharge of groundwater in the lower level alluvial and carbonate basement aquifers is either unknown or "not well understood." It seems that the main reason to go to the lower alluvial aquifer for drawing water is for additional purity and because certain scenarios project continued multi-year pumping at a rate of up to six times the disputed 30,000 acre-feet per year. A deep well will allow a short-term overdraft of many, many years worth of native groundwater. G6-9

A project is required to present an environmentally preferred alternative. A clear environmentally preferred alternative is to take out the water you put in from the aquifer you put it in. This seems to make sense. Take out what you put in. This is not given as an alternative, all pumping is from the lower aquifer, all storage is in the upper aquifer. Why isn't this included?

Failure to Show Impacts or Provide a Limitation on Short-term Overdraft Retrieval
The EIR scenarios show that the intention of the Metropolitan Water District is to pump native groundwater at the rate of up to 150,000 acre-feet per year. Several scenarios indicate that in a multi-year dry spell when the "stored" or "cycled" water has been used, pumping will continue at the 150,000 acre-foot rate perhaps for several more years. This would result in a native groundwater overdraft of up to twenty years worth or more if the 30,000 acre-feet per year figure is accepted. If this proposal is carried forward there must be an analysis and determination of a reasonable limit of short-term overdraft and the environmental consequences involved. G6-10

Inappropriate to Pollute Pure, Native Groundwater under Public Lands; Construct a Filter Plant at Iron Mountain to bring the Colorado River Water up to Cadiz Native Groundwater Standards
An element of the environmentally preferred alternative would a component in the conveyance transport system which purified the Colorado River water to Cadiz Valley groundwater standards. This would allow the mixing of the two water sources without appreciable pollution of the native groundwater. Pollution of an intact Pleistocene aquifer to "purify" water for urban drinking is not an acceptable "multiple use" of BLM-administered public lands. G6-11

Failure to Analyze Impacts of Groundwater Manipulation on Cadiz Dunes Wilderness
The EIR states that the groundwater level under Cadiz Dry Lake will fluctuate depending upon the phase of storage, retrieval, or transfer. The Cadiz Dunes Wilderness Area site right on top of the groundwater path between the project and the Cadiz Dry Lake. One of the unique attributes of sand dune habitats for insect, plant and wildlife is the stored water within and under desert sand dunes. What impact will this manipulation have on this fragile environment? No data is presented regarding this prospect. G6-12

Failure to Analyze Long-term Affects of Groundwater Manipulation on Surrounding Springs both in and not in Wilderness Areas

The 1994 Desert Protection Act specifically identifies water rights as a part of the resources granted to the designated BLM wildernesses in the act. As expressed through surface seepage in springs, the groundwater is thus legally protected for wilderness areas. Please be sure that long-term effects on springs at distances from this project are professionally studied as part of any re-distribution of this plan. Desert Survivors also hopes that the BLM will consider it to be the rightful role of the landowner of public land to defend non-wilderness springs as well.

Conveyance Facilities in BLM Class L (Limited) Lands are Inappropriate

The 1976 FLPMA Act described specifically the California Desert Lands as requiring a special level of protection. The current California Desert Protection Plan indicates that Class L lands should be: "oriented towards giving priority protection to sensitive natural, scenic, ecological, and cultural resources while placing limitations on other uses that may conflict with or degrade these values." The area surrounding the Iron Mountains has been designated Class L. These lands have special sensitive resources, some of which are described in the EIR. Desert Survivors would like to protest the proposed usage of Class L lands for pipelines, four-story powerlines and roads. There are non-Class L alternative routes which were discarded from the EIR. Lets get these back.

No Cost to Consumers Figures Included

Part of the Impact of this project is the cost per acre-foot of this water as passed on to the Met water customers. If the cost is too high, the demand slackens. As part of the purpose and need for the project the a certain demand or "need" was presented. Part of this equation is the cost of the water produced by this project. What is the projected cost to consumers of the native groundwater? How much will Cadiz be paid and how much will the Met have to pay in operation and capitalization amortization costs? How does the costs of this project compare with that of the Hayfield project which the Metropolitan Water District has embarked upon? Will the water users of Southern California be paying three or four times as much for this water as that of the Hatfield Project?

Lack of Information on Existing Utility Corridors

The project requests a new utility corridor over undeveloped BLM public lands. The document does not provide the reviewer with a map of existing already-designated utility corridors. Is it the case that the Arizona and California Railroad right-of-way is already a utility corridor since both it and a gas pipeline share it? The purpose of these corridors it for new projects to confine themselves into shared usage of existing routes rather than disrupt additional sensitive lands. No new corridor is needed. Use the existing right-of-way.

No Consideration of Roadless Area Impacts

A nationwide effort is being made to identify the last of our country's roadless areas. Especially in the Forest Service-managed portions of our public lands, this quality (roadlessness) is being considered in long-tern planning. It has been stated that there is no place in the lower 48 states of the United States that is farther than 11 miles from a road. The Iron Mountain/Kilbeck Hills

Roadless Area contains approximately 166 sections, over100,000 acres of contiguous roadless public land. It is one of the largest mostly pristine areas left in the Mojave Desert not now protected with official wilderness status. These are areas to be treasured for their lack of human intrusions, not piece-mealed into degraded split-up portions with their integrity as wildlife habitat and their aesthetic wholeness long-gone. Survey work is now being conducted by volunteer wilderness advocate groups to enroll a General Patton/Iron Mountain Wilderness Area into the upcoming California Wildlands 2000 legislative campaign. Destruction of this existing roadless area and potential wilderness area should not be accepted by the BLM; any impacts need to be at least assessed in the EIR and presented for public comment. G6-17

No Evaluation of Landscape Resources

On February 16th, 2000, Secretary of the Interior Bruce Babbitt announced an address in which he defined what he called an evolving but important new type of public land management - National Landscape Monuments. He stated that the time had come for the BLM to lead the way in defining, protecting, and managing these large national landscapes in a more inclusive, yet still stringent fashion - different from national park management. The Secretary's speech resonated in me as I drove down the Cadiz/Danby road recently. The extent of this landscape is vastly larger than any one wilderness area, larger than any one desert valley, it is a complex regional landscape including the water sheds described in the EIR with the Sheephole and Danby Dry Lake valleys as well. There are railroads, paved roads, dirt roads, mines, a few ranches, mines, historic landmarks, and some agriculture. The over-riding feeling is a journey to the past. This is Route 66 landscape, it is a 1940s, 1950s, and 1960s landscape. It is a land of old railroads, old tourist stops, abandoned or barely functioning salt and mineral mines. Anything new here is an intrusion on the landscape. G6-18

Route 66 Historic National Landscape Monument

When I first drove down the Cadiz/Danby road several years ago, it was a cloudy day. As it got later and the light waned, we heard the drumming of an approaching railroad train. It's five throbbing diesel engines were coming so slowly across the open desert, from nowhere to nowhere. I felt a sense of mystery and gladness that I was experiencing this encounter. I have always referred to the Arizona and California Railroad as the "ghost" train and always look forward to another chance to view its ponderous journey. This is a landscape feeling. This is an aesthetic feeling. Desert travelers have a right to expect these kinds of experiences. They are degraded by additional "new" modern improvements. The Route 66 experience is valid. This area expands on that entwined feeling of vast desert space and mid-term history. These are significant elements in this greater landscape. They are definable, they are protectable, they deserve analysis and an impact evaluation. Us history buffs deserve some respect. G6-19

Aesthetic Impact Incomplete and Inaccurately Presented

Contrary to the EIR there is NO existing powerline along the railroad right-of-way between the salt works at Danby Dry lake and just south of Cadiz where the natural gas pipeline crosses. This twenty-five mile stretch is one of the most open, pleasing, desert graded-dirt road drives. The openness of the valleys and the mysterious qualities of this "backcountry-byway" would be irreparably harmed by the presence of a four-story modern powerline boxing in the driver's G6-20

relationship with the landscape.

Failure to Present a Complete Environmentally Preferred Alternative
A critical portion of the NEPA requirements in reviewing the potential impacts of a project proposal is the identification and description of the "environmentally preferred" alternative. This alternative is to be developed without the limitations of cost if otherwise feasible. This alternative will allow the reviewer a contrast to those alternatives which are presented as more practical economically.

The Cadiz project rejected its initial alternatives E-2 and E-3 which crossed Danby Dry Lake along the powerline corridor and followed the railroad right-of-way to the project site. These routes do not disrupt any Class L limited use areas, these routes do not disrupt existing significant roadless areas, these routes do not add to impact on wildlife and plant resources, these routes do not add to the destruction of cultural and archaeological resources, these routes take advantage of existing utility rights-of-way. These routes are the environmentally preferred alternatives. They were rejected for unspecified cost reasons and we were not given the ability to contrast these less-impacting routes with those presented..

A key element of the environmentally preferred alternative is the absence of a companion powerline along the railroad right-of-way. Either put it underground or include the natural gas alternative which needs no powerline.

Lets add in the pre-purification of the groundwater stored and pumping only from the upper alluvial aquifer and maybe we have a project alternative which we can consider, if the sustainable groundwater yield can be resolved.

SUMMARY

Desert Survivors is very concerned with this project. Even if the additional information in the USGS and Durbin/Foster groundwater studies are adopted as guidelines, our concerns our not abated. As you can see, many other issues are raised by this proposal. In the end however, two major ones predominate:

The BLM must be pro-active, protective, and knowledgeable regarding the groundwater resources under its public lands.

In the California Desert, precedence must be given to the preservation of undeveloped natural landscapes with emphasis on the special environmental and cultural resources and management of sustainable low-impact public recreation.

The Cadiz Groundwater and Dry Year Storage Program, as presented, leaves too much out, raises too many questions, and fails to find a proper niche for itself which accords its neighbors sufficient respect.

The No-Action Alternative is appropriate; failing that, much more work is needed before a revised project document should be presented to the public again.

Thanks for your time and keep us informed of any new information about these issues. I would be happy to discuss any questions you have regarding these comments. GL-22

Sincerely yours,

Bob Ellis
Cadiz Groundwater Task Force Chair
Desert Survivors

March 6, 2000

Susan L. Nash
Conservation Chair
San Bernardino Valley Audubon Society
P.O. Box 1254
Lakeview CA 92567

Mr. Dirk Reed
Mr. Jack Safely
Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054-0153

G7

Mr. James Williams
Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside CA 92507-0714

Re: CADOZ GRPIMDWATER STPRAGE AND DRY-YEAR SUPPLY PROGRAM, Draft Environmental Impact Report/Draft Environmental Impact Statement, SCH. No. 99021039.

Mr. Reed, Safely and Williams:

The San Bernardino Valley Audubon Society (SBVAS) respectfully submits the following comments in opposition to the above EIR/EIS. G7-1

(1) A much more intensively focused and sensitive survey of plant and animal species should have been conducted for all species, in particular the desert tortoise, American badger, Yuma mountain lions and Nelson's bighorn sheep. G7-2

(2) There needs to be a thorough analysis of the significant negative impacts to desert species when all the springs and other water sources fed by the underground water basins in this area are depleted by this and other associated water mining projects. The impact of water depletion on desert species has effectively been ignored in the EIR/EIS. G7-3

(3) The potential for the spreading basins to create avian cholera and avian botulism that will significantly impact migratory bird and other wildlife species has also been ignored. G7-4

(4) The Growth-inducing impacts for all of the MWD service area (much of Southern California) has also been ignored. Obviously, if ample water can be supplied by this project for dry years, then many tens of thousands more homes and G7-5

businesses can be built than would be possible without this project. Merely quoting SCAG or other population projections is not sufficient analysis of the significant growth inducing impacts of this massive water mining project. G7

(5) The cumulative impacts, in addition to the cumulative growth inducing impacts, have also been ignored. As more and more water is mined by this and related projects (such as the Cadiz farming project) there will be increasing negative impacts both to wildlife and to nearby human water users. G7

(6) The impacts on the progress of the San Bernardino Valley MSHCP and the Western Mojave Regional Plan have also been ignored. G7

(7) The watershed model utilized in the EIR/EIS to analyze and verify the high recharge rate alleged is inherently flawed for reasons which have been thoroughly outlined in comments submitted by other experts and public agencies. In fact, it appears that there will be little or no recharge of the groundwater and that this is simply and purely a water extraction project. That water extraction scenario has not been analyzed in the EIR/EIS. (see letter from Wes Reeder to John Goss and various USGS reports submitted as part of this administrative record.) G7

(8) The draft EIR/EIS fails to take into account the current allotment given to the CADIZ Agricultural Company in 1993 for farming. Without an accurate disclosure of the amount of water already allotted to Cadiz and other users in the area, there can be no meaningful discussion of the further significant impacts of this ground-water extraction project. G7

The SBVAS requests that this EIR/EIS be withdrawn and redrafted to include the above missing information and analysis, so the public can be fully informed of the significant negative environmental impacts of this water mining project. G7

Sincerely,

Susan L. Nash

Susan L. Nash
Conservation Chair
San Bernardino Valley Audubon Society

SOUTHERN NEVADANS COMMITTED TO CONSERVATION



RED ROCK AUDUBON SOCIETY

G 8

March 6, 2000

Metropolitan Water District of Southern California
Attn. Jack Safely
PO Box 54153
Los Angeles, CA 90054-0153

RE: CADIZ VALLEY WATER PROJECT

Dear Sir:

As a longtime desert dweller with an interest in groundwater I am very concerned about the MWD's plan to purchase up to 1,000,000 acre-feet of groundwater from the Cadiz Valley Aquifer. GB-1

I think it is critical that either a new or supplemental EIR be prepared which will include the USGS report on the perennial yield of the basin. Even though the USGS report is late on the scene its implications are so serious that ignoring it would be a serious dereliction of duty on the part of the MWD. GB-2

Basing a long-term water plan on withdrawal of fossil water from aquifers underlying the Mojave Desert is poor planning as well as a potential ecological catastrophe for the Mojave, where groundwater supports all the permanent springs upon which much desert wildlife is dependent. GB-3

Sincerely,

John E. Hiatt

John Hiatt
Conservation Chair

POST OFFICE BOX 96691 LAS VEGAS, NV 89193

CNRCC DESERT COMMITTEE

Elden Hughes
14045 Honeysuckle Lane
Whittier, CA 90604

March 7, 2000

G9

Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054
Attn: Dirk Reed

Bureau of Land Management
California Desert District
6221 Box Springs Blvd
Riverside, CA 92507
Attn: James Williams

RE: DEIS/DEIR Cadiz Groundwater Storage and Dry-Year Supply Program

These comments are made in behalf of the Sierra Club. G9-1

The Sierra Club supports the off-stream aquifer storage of water; however, this project as set forth in the DEIS/DEIR raises grave concerns and does not have our support. We are concerned that the draw down of the aquifer would have grave consequences for the natural resources of the nearby Bureau of Land Management (BLM) Wilderness Areas and the National Park Service Mojave National Preserve, and the Public Land resources of the project area. We further believe that the DEIS/DEIR is inadequate, and that it should be revised and recirculated for additional public review and comment. G9-2

We have reviewed the report of the United States Geological Survey and the Durbin/Foster report prepared for the County of San Bernardino. We are not hydrologists, but the above two reports raise enough questions that the recharged numbers used in the DEIS/DEIR are not to be trusted. Rather than total redundancy, we incorporate these reports by reference. G9-3

SIERRA CLUB

We believe the DEIS/DEIR is inadequate for the following reasons:

The DEIS/DEIR makes numerous references to a monitoring and mitigation plan in the documents, but fails to contain such;

The DEIS/DEIR fails to consider an existing utility corridor (the railroad right-of-way) from the MWD Aqueduct to Cadiz, but rather considers two other alternatives. It thus fails to contain a reasonable range of alternatives. The BLM should not be considering a new corridor, nor is it required to grant such a right-of-way. The proposed corridor will impact the wilderness areas and the Class L lands that the BLM is charged with protecting.

While the DEIS/DEIR mentions that the Trilobite Wilderness is only 3.5 miles away from the project, it fails to discuss the project's effects on the springs in that Wilderness or even that it has springs and the fact that historically that Wilderness has been the home of the second largest herd of bighorn sheep in the Mojave Desert.

The USGS and San Bernardino County have reviewed the water recharge model and data and find it seriously flawed. It appears to greatly overestimate the recharge and much of the value of the project is based on such overestimated values. In light of these reviews, it is imperative that Cadiz and MWD redo the studies and reevaluate the project.

Lowering the water table which the DEIS/DEIR acknowledges it will do, can have disastrous effects on the surrounding Wilderness Areas and potentially the Mojave National Preserve. In the case of the Cadiz Sand Dunes it could deprive the dunes of their under surface water. Virtually all small animals on the dunes are dependent on moist sand one-half inch below the surface. It is to this they dig to escape the heat. Lack of this moisture means they dig to death. In the case of Clipper Mountains Wilderness and Trilobite Wilderness the drying of the springs would decimate the bighorn herds and the wildlife dependent on the springs.
It is unbelievable that the Mojave National Preserve is unmentioned in this context.

Lowering the water table and thus depriving the "dry" lakes of Danby, Cadiz, and Bristol of their under surface moisture could make the lakes enormous sources of PM10 particles. This possibility does not seem to be acknowledged.

The Sierra Club is concerned with impacts to the night sky by the projects lighting. Light pollution is pollution and is a concern of ours.

The statement is made in the DEIS/DEIR that the potential effects of subsidence are insignificant because they are spread over a large area. Any subsidence is significant. To further assume that subsidence is uniform is an assumption which needs much further study. The subsidence once occurring in Long Beach Harbor was from a much deeper liquid withdrawal yet it was far from uniform.

The BLM should consider the purity of the water in the aquifer as one of the resources it is charged with protecting. The impacts of releasing 1,015,532 tons of salt and 12.2 tons of perchlorate into the groundwater is a significant impact. If we ignore these impacts there is still the question of which aquifer. The environmentally preferred alternative would be to take out the water that is put in from the aquifer it was put in. This is not given as an alternative, all pumping is from a lower aquifer, all storage is in the upper aquifer

We are commenting on a project DEIS/DEIR that had its public meetings in Needles and 29 Palms. These communities may have proximity, but not the affected population. They become the affected population only if large dust storms result from the project. There should have been more public hearings in the affected communities. Maps, such as Figure 4-8 on page 4-19, are incomplete by showing only some of the Wilderness Areas within the mapped area, but not all. The Cadiz land holdings are displayed, but not the land tenure of the proposed rights-of-way. The DEIS/DEIR says the present agricultural water extraction has not significantly affected water levels, but never defines "significant"or the method by which non significance is determined. The DEIS/DEIR tells us less than we need to know to make intelligent comments.

G9-14

G9-15

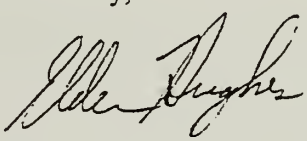
G9-16

The no action alternative is the appropriate alternative based on the present DEIS/DEIR, otherwise a reanalysis and rewrite of the DEIR/DEIS or significant supplement is needed.

G9-17

G9-18

Sincerely,



Elden Hughes
Chair
Sierra Club
California/Nevada RCC
Desert Committee

California Native Plant Society

Metropolitan Water District
Water Resources Management Group
P.O. Box 54152
Los Angeles, CA 90054-0153
Attn: Mr. Dirk Reed
Mr. Jack Safely

Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714
Attn: Mr. James Williams

G10

March 8, 2000

RE: Comments on the Cadiz Ground Water Storage and Dry-Year Supply Program Draft Environmental Impact Report and Draft Environmental Impact Statement No. 99021039

Dear Mr. Reed, Mr. Safely and Mr. Williams,

The California Native Plant Society is a non-profit group dedicated to the conservation and protection of California's native plant life and to the education of members and the public about the California flora. Our comments on the Cadiz Ground Water Storage and Dry-Year Supply Program Draft Environmental Impact Report and Draft Environmental Impact Statement (DEIR/EIS) follow in two sections. The first section contains general comments about the proposed project and the second section includes document-specific comments. We urge you to consider and address these constructive comments. G10-1

General comments:

The 150,000 acre-feet that this project would supply (Table ES-1) during dry years could be more efficiently and less-expensively provided through additional aggressive water conservation efforts. CNPS supports efforts to reduce the utilization of water in southern California by the horticultural use of indigenous native plants, which require less water than "traditional" exotic plantings and also provide benefits of animal habitat creation, as part of the solution of water conservation. G10-2

An alternative needs to be included that uses previously disturbed areas and existing energy corridors, that would "1) minimize the number of separate right's of way by utilizing existing rights-of-way... and 2) encourage joint use of corridors for transmission lines, canals, pipelines and cables" as identified in the California Desert Conservation Area Plan as amended (1980). This alternative would use the existing transmission line corridor from the Iron Mountain Pumping Station across Danby dry lake, to Cadiz Road, and then along the All American Pipeline right-of-way or the railroad right-of-way. These right's-of-way are previously disturbed, provide easy access for maintenance and G10-3

eliminate impacts to undisturbed vegetation communities that would happen in all proposed alternatives. This alternative would prevent further fragmentation of plant communities and the habitat they provide, decrease the spread of exotics and retain the values of undisturbed habitat.

With the creation of inundation basins, we anticipate a likely environment for the establishment of tamarisk (*Tamarix* sp.). This highly invasive weed whose tiny seeds are dispersed by wind will establish wherever water is available, such as the spreading basins proposed in this project. MWD desert facilities currently support tamarisk infestations (Copper Mountain reservoir as seen on Huell Howser). Large-scale abatement projects near the proposed project site (Camp Cady, Afton Canyon) are currently funded at taxpayer expense to eradicate tamarisk. A tamarisk abatement program needs to be addressed, established and implemented for all MWD desert projects to minimize the spread of tamarisk in the California deserts.

The document was unclear as to the actual fluctuation of the groundwater and its range in quality during the duration of the project. Therefore, no analysis was provided on the impacts to the existing vegetation types. Will the water quality change and affect the existing vegetation, some of which are sensitive to elevated levels of total dissolved solids and others (halophytes) that require saline conditions to persist? Many of the halophytic chenopod communities (Desert Iodine Bush Scrub, Greasewood, and others) are considered "rare and worthy of consideration" communities by the California Department of Fish and Game (NDDB 1997), and could be impacted through groundwater fluctuations. Although no halophytic communities were addressed in the DEIR/EIS, presumably because they occur outside of the footprint of the conveyance alternatives, their occurrences in the area of influence of this project should be documented and an analysis of impacts should be provided.

Document Specific Comments:

Page 5-119, AQ-4. CNPS recognizes the need for dust abatement during construction and supports suppression in an ecologically sound manner. The use of water in conjunction with construction disturbance encourages the establishment of weedy exotic vegetation and leads to possible invasion into other communities (especially naturally disturbed vegetation types as dunes and sand fields). When dust abatement is performed, do not use watering as a technique.

California Department of Fish and Game (CDFG) threatened plant communities as identified on Page 5-143, include 1) Mojave wash scrub and 2) stabilized and partially stabilized desert dunes and desert sand fields. Further discussion ensues on page 5-155, where stabilized and partially stabilized desert dunes and desert sand fields are identified to occur on 2000-10000 acres statewide, however, in the reference provided (Sawyer and Keeler-Wolf 1995), no estimate of extant acreage is provided. How was this estimate produced?

No estimate for worldwide acreage is given for specifically for Mojave wash scrub. It is lumped with stabilized and partially stabilized desert dunes and desert sand fields (10,000 to 50000 acres worldwide) page 5-155, last paragraph, 3rd sentence. These lacking data preclude any analyses of impacts by this project. G10-8

No impact evaluation is given for either of these recognized sensitive plant communities other than the numbers of acres disturbed in Table 5.8-3. Our calculations conclude based on the data provided for stabilized and partially stabilized desert dunes and desert sand fields in this document the different alternatives would impact this sensitive community as follows: G10-9

Alternative	Disturbed acreage of Stabilized and Partially stabilized desert dunes and desert sand fields	% in California (assuming regional significance)
1 & 4	165.2 acres	8.26-1.65%
2	188.8 acres	9.44-1.89%
3	197.6 acres	9.88-1.98%

Because no analyses are addressed for Stabilized and Partially Stabilized Desert Dunes and Desert Sand Fields, no mitigations are considered. Impacts could be significant and should be analyzed.

Table 5.8-1 Special Interest Plant Species indicates that 22 species were surveyed for in 1999, which was very dry and resulted in poor species germination and flowering in general. Although one Special Interest Plant Species was identified to occur commonly in the sandy areas, twelve of the Special Interest Plant Species were identified as having suitable habitat but were not found, presumably because of the dry year conditions. We advocate that additional surveys be performed this year to confirm the presence of these species. G10-10

No quantifiable criteria are listed in Section 5.8.2 Threshold of Significance, page 5-158. What is a "substantial adverse impact"? G10-11

We suggest that you locate the "blowoff structures" referenced on Page 5-163 at wash crossings, so the natural hydrology is more effectively mimicked, pending analysis of water quality. G10-12

Page 5-177 Mitigation Measure B-1. This section identifies 4-6 inches of topsoil that will be salvaged, while the executive summary indicates that 3-4 inches of topsoil will be salvaged. 4-6 inches of topsoil is the preferable amount of salvaged material. G10-13
Furthermore, the cryptobiotic soils will not survive stockpiling, due to their photosynthetic requirements, and should be salvaged separately. G10-14 Vegetative material that is to be salvaged would be more effectively salvaged as whole plants that can be used as "vertical mulch" for the revegetation effort. Vertical mulch provides better water infiltration, safe sites for seed germination and more visual integrity for the revegetation effort. Mulched vegetation can result in richer soils if composting occurs, and rich soils G10-15

will favor the establishment of exotic vegetation, especially in conjunction with disturbance. Mulching should not be allowed to occur in the stockpiles, and can be prevented by keeping the stockpiles small (no greater than four feet in height) and minimizing the time soils are stockpiled.

Page 5-178 Mitigation Measure B-1. Last Sentence "Plans and Specifications will specify topsoil storage locations and depths and necessary equipment". These specifications should be provided in as full disclosure of the alternatives as per the NEPA process. Topsoil locations need to be identified for location and size – if stockpiles are sizable they will require large areas for proper storage and will affect the "footprint" of the project. Small stockpiles are preferable, and will be numerous and may be more likely to be inadvertently impacted, which will destroy the integrity of the stockpile, rendering it useless for revegetation purposes.

Page 5-178. Mitigation Measure B-3. What is the scientific name for camel knapweed?

Page 5-182. Mitigation Measure B-26. Will the 1:1 mitigation ratio be for temporary or permanent impacts? Any disturbance to sensitive resources should be mitigated.

Because these issues and the environmentally preferred alternative (along existing right's of way) have not been sufficiently addressed in the DEIR/EIS coupled with the conflicting analyses provided by the USGS report and the independent San Bernardino County groundwater study, we request a new or supplemental DEIR/EIS be produced to address/resolve these issues.

Please contact me with any questions (323) 654-5943

Sincerely,



Ileene Anderson
Southern California Regional Botanist
California Native Plant Society

Cc: Emily Roberson, Senior Land Management Analyst, CNPS
David Chipping, VP Conservation, CNPS
Sierra Club
Desert Watch

Event (Event Succeeded)

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NATIONAL PARKS CONSERVATION ASSOCIATION
THE WILDERNESS SOCIETY

8 March 2000

Post-it Fax Note #7673 | Date 3/8 | # of pages 7
To Jack Safely
Fax 213-217-6119
From Peter Wagenvoord
Phone 510-839-9922

Jack Safely
Metropolitan Water District of Southern California
Post Office Box 54153
Los Angeles, CA 90054-0153

James Williams
Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714

RE: CADIZ GROUNDWATER STORAGE AND DRY-WATER SUPPLY PROGRAM DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT (DEIR/DEIS)

Dear Mr. Safely:

Thank you for the opportunity to comment on the abovementioned document. We also appreciate your communication of the March 8, 2000 deadline in our telephone conversation of February 22, 2000. The National Parks Conservation Association (NPCA) is America's only non-profit, private citizens' organization dedicated solely to protecting, preserving and enhancing the country's National Park System. Founded in 1919, NPCA currently has over 400,000 members, with 65,000 members in California. The Wilderness Society (TWS) is a national conservation organization with 200,000 members nationwide, and 30,000 members in California. G11-1

We have very serious concerns about this project and the enormous potential it has to seriously degrade federally protected National Park Service (NPS) and Bureau of Land Management (BLM) lands. Furthermore, we believe that the information and analysis in the DEIR/EIS is fundamentally flawed, invalidating the document and its ability to comply with the National Environmental Policy Act, 42 USC 4321 et seq. (NEPA) G11-2

This project has the potential to degrade the natural resources of Mojave National Preserve which was placed under the protection of the NPS in 1994 to provide permanent protection for the area's unique and nationally significant natural and cultural resources. The project also could seriously degrade natural resources on BLM lands including the Trilobite Wilderness, Clipper Mountains Wilderness, Cadiz Dunes Wilderness and Old Woman Mountains Wilderness. Due to the fundamental flaws of the DEIR/DEIS, the Metropolitan Water District (MWD) and BLM need to revise and recirculate a new document. We support the no action alternative, combined G11-3

with active efforts on the part of MWD to implement water conservation efforts and reclamation measures to reduce the need for this project. G11

General comments

Independent reviewers have heavily criticized the data and analysis used as the foundation for this document. The United States Geological Survey and the County of San Bernadino (the Durbin/Foster report) have separately generated reviews of the EIR/EIS that indicate that the document is based on gross overestimates of groundwater recharge and manipulates data to substantiate erroneous conclusions. We incorporate these reports by reference. NPS hydrologists and water rights specialists have drawn similar conclusions.

The document asserts that the project involves the sustainable use of groundwater. According to these independent reviews, that conclusion is based on an estimated rate of the groundwater recharge that is 5 to 25 times the actual recharge rate. The groundwater flow model used by the document planners was not technically sound and did not accurately reflect discharge at Bristol and Cadiz Dry Lakes, soil water storage and consumption by desert plants. Additionally, the document overestimates the size of the groundwater basins, does not acknowledge the fact that the bulk of the groundwater in the basins was recharged thousands of years ago under much wetter climatic conditions, and fails to factor in evaporation in percolation ponds.

Using corrected figures, it is clear that the proposed project actually involves the removal of millions of acre-feet of indigenous groundwater dating back to the Pleistocene. In fact, Cadiz is already pumping out 5,000 to 6,000 acre-feet of groundwater a year for agricultural use. This is potentially double what USGS estimates to be the actual recharge to the basins. While there may be theoretical merit in an underground water storage project, this project is, in fact, a groundwater removal project. Because of the immeasurable and irreversible toll this project may take on the aforementioned federally protected lands, we cannot support the project. Furthermore, without a sound groundwater study, the document is not equipped to competently evaluate the potential impacts to the surrounding lands that overlie the Fenner, Bristol and Cadiz aquifers, and therefore does not comply with the requirements of the National Environmental Policy Act (NEPA). See, eg., 40 CFR 1502.22. G

Impacts to BLM lands

The DEIR/DEIS fails to analyze the potential impacts of the project on federal reserved water rights held by BLM in surrounding Wilderness areas, including the Trilobite, Clipper Mountains, Cadiz Dunes and Old Woman Mountains Wildernesses. When the California Desert Protection Act (P.L. 103-433) (CDPA) was enacted in 1994, Congress reserved, for each Wilderness area designated by the Act, "a quantity of water sufficient to fulfill the purposes of this Act." 16 USC 410aaa-76. In order for sufficient water to be reserved to meet the purposes for which these Wilderness areas were established, the BLM must undertake a thorough and complete analysis of all springs, seeps and other water-containing bodies within the area of potential impact. This analysis must be completed, and sufficient water must be reserved for the Wilderness areas by the BLM, prior to the final Cadiz project being approved. Similarly, all Wilderness Study Areas designated by Congress in 1994 should undergo a similar analysis. G11

The DEIR/DEIS fails to analyze the potential impacts of groundwater storage, retrieval and transfer on the Cadiz Dunes Wilderness. This BLM Wilderness area sits atop the groundwater G11

2

path between the project and Cadiz Dry Lake. The groundwater table that lies beneath Cadiz Lake is projected to fluctuate depending on the phase of storage, retrieval and transfer of groundwater, implying that the groundwater table beneath the Wilderness area will similarly fluctuate. Such fluctuation could impact dune-associated plants and wildlife which are dependent on groundwater for their sustenance and a moist layer under the surface of the dunes from which they can escape the desert heat. The DEIR/DEIS must be revised and include an assessment of the impacts of possible groundwater table fluctuations on this important Wilderness area. The revised DEIR/DEIS must also examine the aesthetic impacts of situating the pipeline and four-story powerline within the viewshed of this wilderness area, as well as the viewsheds of the Old Woman Mountains and Trilobite Wildernesses. G11-6

The Trilobite Wilderness is only 3.5 miles away from the project, yet the DEIR/DEIS does not discuss the project's potential impacts on the springs in that area and the second largest herd of bighorn sheep in the Mojave Desert. The Clipper Mountains Wilderness also harbors springs and habitat for the desert bighorn. The revised DEIR/DEIS must analyze how the project may harm the spring-dependent flora and fauna in these Wildernesses. G11-7

In the section on BLM responsibilities, the DEIR/DEIS needs to acknowledge the fact that BLM has the authority to refuse to permit the associated right-of-way. The established California Desert Conservation Area plan does not authorize a utility corridor, and the project is therefore not in conformity with the CDCA. Some of the lands that would be used for the utility corridor are Class L (Limited), a category indicating these lands are to be "oriented towards giving priority protection to sensitive natural, scenic, ecological, and cultural resources while placing limitations on other uses that may conflict with or degrade these values." {BOB – CITE?] The lands under consideration provide habitat for both desert bighorn sheep and the desert tortoise. Placing the pipelines, four-story powerline and roads for this project on class L lands is problematic and will require an amendment of the CDCA Desert Plan. This proposal is especially questionable as there appear to be viable alternatives involving the use of non-class L lands, alternatives which have not been seriously considered in this DEIR/DEIS. See the following section on alternatives for elaboration on this point. G11-8 G11-9

Impacts to Mojave National Preserve

The DEIR/DEIS does acknowledge that this project is not consistent with the land use of a National Park unit and, on that basis, rejects alternatives that would site the project next to or within Joshua Tree National Park. We support that analysis but find that the DEIR/DEIS is inconsistent in not applying that logic to Mojave National Preserve, which is only 15 miles from the project site and is partly situated above the Fenner aquifer, and is likely to be affected by the groundwater drawdown proposed in this project. G11-10

The document also acknowledges that Mojave National Preserve is 15 miles north of and up-gradient from the project spreading basins and well-field. The analysis, however, must begin, not end there. The RDEIR/RDEIS should include an analysis of how the project may impact the Preserve's resources, including but not limited to:

- Springs and seeps
- Sensitive flora and fauna
- Wilderness values

- Wildlife habitat and migration
- Air quality
- Water quality and supply

The DEIR/DEIS currently asserts that the project will not impact the groundwater fifteen miles away under Mojave National Preserve, yet elsewhere indicates that groundwater drawdown could occur as much as 25 miles away from the proposed pumping centers. The DEIR/DEIS and other studies indicate that drawdown could occur beneath the Preserve. This possibility and the resulting impacts need to be addressed in the revised DEIR/DEIS.

Inaccurate, incomplete data and analysis

Water quality: Colorado river water, which the DEIR/DEIS states is two orders of magnitude more polluted than what is safe for human consumption, is going to be stored with the extant pristine groundwater. The degradation that will result from injecting polluted water, including high levels of salt and perchlorate, into the aquifers needs to be analyzed as an impact. The RDEIR/RDEIS should consider filtration or some other means of purification prior to depositing it in the aquifer.

Subsidence: The document refers to subsidence that would result from this project, but does not adequately address the issue. The document predicts an up to 22 inch subsidence in the valley floor, yet also states that mitigation will reduce potential subsidence effects below a significant level. The referenced mitigation only calls for monitoring and remedial actions if subsidence exceeds one foot per mile. Yet this is after the fact and well after mitigation measures should have been triggered. Furthermore, the document doesn't suggest stopping water extraction as a mitigation measure. This issue requires a thorough and complete analysis that includes measures to stop damage before it occurs and includes meaningful actions to prevent subsidence.

Water supply: Even using the document's own numbers, MWD and BLM project a 190 foot drop in groundwater levels, but does not discuss the resulting impacts to the region's natural resources. Additionally, it is not clear what the document means by characterizing this project as wet year storage and dry year withdrawal project. If there is a series of dry years, does this then permit intensified groundwater extraction? Furthermore, it is unclear if the "wet year" is defined by conditions in southern California or the availability of water from the Colorado River.

The revised DEIR/DEIS must include a new groundwater model based on accurate information about the hydrology of the desert basins under consideration. It must include a map of projected drawdown contours, that also identifies all springs, seeps, wells and riparian areas for the region and includes the boundaries of all potentially affected BLM and NPS lands.

Air quality: Lowering the water table is also likely to dry out the Danby, Cadiz and Bristol "dry" lakes. This could translate into degradation of air quality, including a release of PM10 particle pollution into the atmosphere. The RDEIR/RDEIS must evaluate this potential impact.

Complete absence of monitoring and mitigation plan

The DEIR/DEIS states that "potential impacts to water resources include adverse changes to the quality and quantity of surface water and groundwater," including impacts to ground structure

stability, water quality and quantity, but concludes that these impacts will be insignificant because of a pending monitoring and mitigation plan. There are several references to a pending mitigation and monitoring plan, yet the plan is not incorporated into the EIR/EIS, making the document fundamentally incomplete. This flaw alone mandates the need for a revised or supplemental DEIR/DEIS.

NEPA requires that such mitigation measures be reviewed in the NEPA process -- not in some future decision shielded from public scrutiny. "[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 (1989). Appellate Courts have explicitly struck down EISs that rely on unspecified future actions to mitigate or avoid environmental impacts. Oregon Nat. Resources Council v. Marsh, 52 F.3d 1485 (9th Cir. 1995) (Elk Creek Dam III); Oregon Nat. Resources Council v. Marsh, 832 F.2d 1489, 1493 (9th Cir. 1987)(Elk Creek Dam I), reversed on other grounds, 490 U.S. 360 (1989), California v. Block, 690 F.2d 753 (9th Cir. 1982). G11-17

NEPA regulations require that the NEPA document: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 CFR 1502.14(f); and (2) "include discussions of: ... Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f))." 40 CFR 1502.16(h). The CEQ has also stated that: "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies..." Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026, 18031 (March 23, 1981).

This section must include meaningful, enforceable regulatory controls that could lead to the modification and even cessation of operations. Monitoring must include mechanisms that will provide immediate feedback about potential impacts to Mojave National Preserve and BLM Wildernesss areas. Mitigation should include the establishment of a mandatory basin-wide monitoring system that is subject to independent and public review.

Lack of consideration of other viable, less destructive alternatives

The alternatives in the document offer a narrow rather than reasonable range of alternatives, as required by NEPA, 40 CFR 1502.14, 1505.1(e). Futhermore, "the existence of a viable but unexamined alternative renders an environmental impact statement inadequate." Resources Limited v. Robertson, 35 F.3d 1300,1307 (9th Cir. 1993) (quoting Idaho Conservation League v. Mumma, 956 F.2d 1508, 1519 (9th Cir. 1992). The failure of the document to adequately review a full range of alternatives fatally flaws the DEIR/DEIS. G11-18

At a minimum, a full analysis of the reasons for rejecting reasonable alternatives should have been included. "The agency must explicate fully its course of inquiry, its analysis and its reasoning." Dubois v. U.S. Department of Agriculture, 102 F.3d 1273, 1287 (1st Cir. 1996). An agency decision must always have a rational basis that is both stated in the written decision and demonstrated in the administrative record accompanying the decision. Kanawha & Hocking Coal & Coke Co., 112 IBLA 365, 368 (1990). The decision must be made in a "careful and

systematic manner." Edward L. Johnson, 93 IBLA 391, 399 (1986). The record must demonstrate a "reasoned analysis of the factors involved, made in due regard for the public interest." Alvin R. Platz, 114 IBLA 8, 15-16 (1990). G11-

Additional alternatives must be developed that consider:

- Alternative sites for the project
- Use of the Fenner, Bristol and Cadiz aquifers for storage and retrieval of Colorado River water *only*, based on a retrieval rate that has been independently reviewed and scientifically substantiated, and is subject to correction from ongoing, accurate monitoring. G11-
- Methods, such as water conservation, and development and use of reclaimed water, to reduce the consumption and need for additional water in southern California. G11-

The DEIR/DEIS fails to identify existing utility corridors which might be able to accommodate the needs for the project. The revised DEIR/RDEIS should include an alternative where Cadiz would utilize existing utility corridors (e.g., Arizona & CA railroad right-of-way) in order to avoid additional project impacts to public lands, and where utility lines would be placed underground, to avoid impacts to the visual quality of the region. G11

The document describes the lowering of the water table in MWD's service area as an environmental impact of the no action alternative, but does not similarly acknowledge the environmental impacts from the lowering of the water table to the Mojave National Preserve and BLM lands. This inconsistency needs to be substantively rectified in the revised DEIR/DEIS. G11

Water rights

The document does not clearly outline the authority under which Cadiz, Inc., is entitled to the volume of water described under each alternative in the DEIR/DEIS. The assumed rights need to also be discussed in reference to potentially competing and superior water rights, as mentioned in the earlier citation of the CDPA with reference to designated BLM wilderness areas. G11-

A project that could impair any springs, seeps or riparian areas in either the Mojave National Preserve or BLM Wilderness areas is unacceptable. Water resources in Wilderness and in the Preserve are federal water rights, held in trust for the American people. This resource is particularly critical to the desert ecosystem, as the minimal water supply is the very lifeline for the survival of most of the desert's flora and fauna. The project proposal must be changed such that it does not entail the removal of more indigenous groundwater than is annually recharged, nor affect any of the water sources in either the Preserve or BLM Wildernesses. G11-

Cumulative impacts

The cumulative impacts section is currently incomplete as it only includes other MWD water projects. This section needs to address all the impacts from other projects that are potentially affecting the same resources. This needs to include other agricultural projects, wells and extraction facilities, as well as playa mining operations. Although the Rail Cycle project is currently stalled due to litigation, the impacts of this "reasonably foreseeable future action" need to be part of this section. G11-

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For example, 5,000 to 6,000 acre-feet are already being pumped out by Cadiz for agricultural use. This needs to be incorporated into the cumulative impacts analysis. The DEIR/DEIS asserts that there have been no significant declines from this use, yet doesn't explain the evidence for this conclusion nor does it define "significant." A significant decline should be defined as a decline resulting from withdrawal in excess of natural recharge, the rate of which needs to be ascertained using hard data that has been independently reviewed. G1-25

Conclusion

The DEIR/DEIS is both inaccurate and incomplete, and thus thwarts the very intent of the legal requirements of NEPA. The incomplete analysis of the environmental impacts of this project combined with the absence of a mitigation plan violate NEPA's fundamental commitment to "prevent or eliminate damage to the environment by focusing government and public attention of the environmental effects of proposed agency action." Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 371 (1989). NEPA requires the federal agency to "consider every significant aspect of the environmental impact of a proposed action" Vermont Yankee Power Corp. v. Natural Resources Defense Council, 435 U.S. 519, 553 (1978), and to ensure "that the agency will inform the public that it has indeed considered environmental concerns in its decision making process." Baltimore Gas and Electric Company v. NRDC, 462 U.S. 87, 97 (1983). G1-26

We look forward to reviewing a revised EIR/EIS that addresses the aforementioned concerns and issues and fully complies with NEPA. As mentioned, it should be recirculated for public review and incorporate measures for water conservation efforts and reclamation measures to reduce the need for this project. Thank you and please contact us with any questions.

Sincerely,

Helen Wagenvoord
Associate Director, Pacific Region
National Parks Conservation Association
P.O. Box 1289
Oakland, CA 94604
(510) 839-9922

Sally Miller
Regional Conservation Representative
The Wilderness Society
P.O. Box 442
Lee Vining, CA 93541
(760) 647-1614

CC: Senator Barbara Boxer
Senator Dianne Feinstein
John Reynolds, Pacific West Regional Director, National Park Service
Molly Brady, Needles Field Office Manager, Bureau of Land Management

PEOPLE AGAINST RADIOACTIVE DUMPING
424 "E" Street
Needles, CA 92363
760/326-4318

March 8, 2000

Governor Gray Davis
State Capitol
Sacramento, California

Mr. Tim Salt, District Manager
California Desert District, Bureau of Land Management
United States Department of the Interior
6221 Box Springs Boulevard
Riverside, CA 92507-0714 — CERTIFIED MAIL NO. Z 261 983 420
Attention: Mr. James Williams — VIA FAX 1 909/697-5299

Ms. Molly Brady, Area Manager
Needles Field Office
Spikes Road
Needles, CA 92363 — VIA FAX 1 760/326-7099

612

Mr. Stephen N. Arakawa, Manager
Water Resource Management Group
Metropolitan Water District - a California Public Agency
P. O. Box 54153
Los Angeles, CA 90054-0153 — CERTIFIED MAIL NO. Z 261 983 418
Attention: Mr. Dirk Reed, Mr. Jack Safely — VIA FAX 1 213/217-6119

San Bernardino County Supervisors — VIA FAX 1 909/387-3223
County of San Bernardino, Planning Division
385 N. Arrowhead Ave
San Bernardino, California 92415-0181

Re: COMMENTS AND ALLEGATIONS WITH REGARD TO THE PROPOSED "CADIZ GROUNDWATER STORAG
DRY-YEAR SUPPLY PROGRAM DRAFT ENVIRONMENTAL IMPACT REPORT DRAFT ENVIRONMENTAL I
STATEMENT SCH. No. 99021039" AKA THE
**"DILUTION OF CONTAMINATED COLORADO RIVER WATER AND CONFORM
TO DRINKING WATER STANDARDS PROJECT"**

Dear Governor Davis and Supervisor Davis, Mr. Tim Salt, Mr. Stephen N. Arakawa, San Bernardino County of Supervisors;

Due to the fact that the Colorado River is contaminated with radiation from the Atlas Mine, bomb testing f and sewerage discharges from industrial and medical wastes upstream (Las Vegas, Laughlin, Bullhead, N we object to the injection of Colorado River water into natural and pristine desert aquifers such as the s Fenner Basin groundwater. The subject EIS/R is deficient in that it does not provide an analysis of the radio elements in water samples taken from the Colorado River, and thus inadequately describes the effect of in radioactive elements included in Colorado River water into the groundwater basin at Fenner. Furth analyzed, is the effect that such radioactive materials injected into the ground water basin at Fenner woul upon existing basin mineral deposits which are being used for beneficial purposes, such as those at the c mines around Bristol Lake.

Submitted by,

Ruth Lopez
Director
People Against Radioactive Dumping

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420 "E" Street
Needles, CA 92363
760/326-2519

March 8, 2000

G13

Governor Gray Davis
State Capitol
Sacramento, California

Mr. Tim Salt, District Manager
California Desert District, Bureau of Land Management
United States Department of the Interior
6221 Box Springs Boulevard .
Riverside, CA 92507-0714 — CERTIFIED MAIL NO. Z 261 983 420
Attention: Mr. James Williams — VIA FAX 1 909/697-5299

Ms. Molly Brady, Area Manager
Needles Field Office
Spikes Road
Needles, CA 92363 — VIA FAX 1 760/326-7099

Mr. Stephen N. Arakawa, Manager
Water Resource Management Group
Metropolitan Water District - a California Public Agency
P. O. Box 54153
Los Angeles, CA 90054-0153 — CERTIFIED MAIL NO. Z 261 983 418
Attention: Mr. Dirk Reed, Mr. Jack Safely — VIA FAX 1 213/217-6119

San Bernardino County Supervisors — VIA FAX 1 909/387-3223
County of San Bernardino, Planning Division
385 N. Arrowhead Ave
San Bernardino, California 92415-0181

Re: COMMENTS AND ALLEGATIONS WITH REGARD TO THE PROPOSED "CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM DRAFT ENVIRONMENTAL IMPACT REPORT DRAFT ENVIRONMENTAL IMPACT STATEMENT SCH. No. 99021039" AKA

"THE GRAY DAVIS WATER & DOLLAR HEIST OF Y2K"

Dear Governor Davis and Supervisor Davis, Mr. Tim Salt, Mr. Stephen N. Arakawa, San Bernardino County Board of Supervisors;

We object to the further abuse of public funds to illegally fund and process the above referenced private project and EIS/R in the vainly taken name of "public benefit." The subject EIS/R is inadequate and deficient in that it fails to state the true purpose, nature and impact of the proposed project including FAILURE TO STATE THAT THE APPROVAL/IMPLEMENTATION OF ANY OF THE PROPOSED ACTIONS WILL RESULT IN: G13-1

1) ***abuse of public funds to unnecessarily transfer millions of acre feet of public water for free to a private corporate "farm" (Cadiz Corp. of Santa Monica)*** Any public money spent on this project , including that money spent on the no action alternative, was too much and should have never been approved. Why should rate payers pay to transfer Colorado River water for free to a private farm? Channeling water to the Cadiz Farms for "storage" serves no beneficial PUBLIC purpose. Currently, there is not enough water available to fill even the aquifers which the Metropolitan Water District has available for storage purposes. There is no need to route the existing supply of Colorado River Water northward 60 or so miles to the Cadiz Farms and back before the water goes to the East Valley (Diamond) Reservoir. With evaporation and the G13-2

current use, the East Valley Reservoir will take years to fill given the amount of water which is available to fill it. The Salton Sea and the groundwater beneath San Bernardino needs to be flushed and replenished and it, too, will demand a continuous supply of water for filling it...more water than is currently available and/or environmentally sound to take from the Colorado River and San Francisco Bay is already needed—there is no reason for water to be sidetracked to Cadiz..

Yet, if approved, this EIS/R will enable the MWD to charge rate payers up to 50% of the cost of building pipelines to the Cadiz Farms and to top of that, rate-payers will pay the farm to hold the water for them at $90 per acre foot of water! What will the twisted minds of politicians and their agents think of next with the help of this Englishman, Brackpool, friend of the Governor. Where is the "Government for the People" who are supposed to be watch-dogging the public's pocketbook?

2) abuse of public funds to install wells for free for use by a private corporate "farm" (Cadiz Corp. of Santa Monica). Wells do not need to be built on private land at the Cadiz farm. Wells can be installed near the existing aqueduct where underground water basins also exist.

3) abuse of public funds to pay a private "farm corporation" for water which does not belong to the corporate "farm" (Cadiz Corp. of Santa Monica). Why should the public pay Cadiz Corporation for water that they will mine from underneath the public's land. Simply put the wells on public land.

4) abuse of public funds for payments to a private "corporate farm" (Cadiz Corp of Santa Monica) for water which can be extracted on public lands OR which can be extracted for less cost on private lands adjacent to or under the existing MWD aqueduct. Fenner Valley and the area under the farm is not a closed basin, but is instead an underground river which flows to the Colorado River. Thus, the only reason canals or pipelines would be needed to Fenner Valley, is not for storage purposes, but for the purpose of (unnecessarily) paying a company for mined water which could successfully be siphoned, extracted, or drawn in the area immediately adjacent to and under the existing MWD canal in the Saltmarsh, Danby, and Rice areas where the water naturally surfaces on its own. Historic maps reveal that the MWD already has siphons at Saltmarsh. It is alleged that it is illegal for the MWD to siphon water from one basin and transfer it to another, but the map leads one to believe that this is what the MWD has already been doing for years without an EIS/R.

5) abuse of public funds to unnecessarily make payments to a private corporate farm for water which is not needed for public purposes. The EIS/R admits that the service area of the MWD will continue to grow whether or not they get this additional water. The EIS/R admits that domestic use in the service area can be drastically reduced (through conservation, using natural vegetation, etc.) without affecting drinking or supplies needed for health and safety. Further, the water will most likely be used for recreation purposes at "Diamond Lake AKA Dominigoni Dam, East Side Reservoir robbing from the beneficial uses in the area where the water is proposed to be taken from.

6) VIOLATION OF THE CALIFORNIA DESERT PLAN. On May 24, 1999 I submitted an objection to the BLM Needles Field Office stating that legal authority for mining and transferring basin groundwater in California for wholesale purposes has not been shown to exist and that the BLM appeared to be engaging in processing an application for an illegal activity. This objection is further supplemented as of this date with the objection to the processing of applications by the BLM for the purpose of proposed mining and transfer of basin groundwater in the California Desert District because there is no provision for such activity in the California Desert Conservation Area (CDCA) Plan (Desert Plan of 1980). The subject Draft EIS/R does not propose to amend the Desert Plan to provide for the mining of water and transferring of basin groundwater in the CDCA. Instead it is a proposal to amend a pipeline corridor to the existing corridors already provided for in the Desert Plan, which is a different kind of plan amendment, site specific, for a purpose which is already provided for. What I am talking about is the FAILURE TO BEGIN THE PLAN AMENDMENT PROCESS for amending the Desert Plan FOR A PURPOSE WHICH IS NOT PROVIDED FOR IN THE DESERT PLAN..."WATER MINING." Water mining does not fall under the same authority as other mineral mining. Water law is

separate and distinct from Mining Laws for Rocks and Minerals. To amend the Desert Plan to provide for water mining would require the BLM to review water law and to determine the overall impact and cumulative effect of water mining throughout the CDCA and to make a determination of which areas in the CDCA are suitable. Once again, the BLM has the cart before the horse. The BLM has allowed a project proponent to make a determination of suitability narrowing plans for water mining to one location before offering the public the opportunity to help in determining suitable areas from throughout the CDCA. The BLM also did this in Ward Valley (on the nuclear waste dumping application) and got their "tit caught in a ringer" over it. The BLM is again exposing the public trust to liability and legal action by processing applications for activities which are not presently allowed in the CDCA and making no attempt to complete a separate Plan Amendment proposal to provide for the presently unlawful activity of "water mining" in the CDCA. G13-7

With this EIS/R, the State of California and the Federal Government is guilty of a) aiding and abetting MWD and Cadiz Corporation to sell water that does not rightfully belong to them, b) rewarding wrongful behavior instead of prosecuting existing MWD transgressions. Unauthorized siphons in Ward Valley (Saltmarsh) and in other ground water basins should be investigated and prosecuted. Ongoing water heists and mining of water without authorization and without studies of the effect upon surrounding environment should be prosecuted. Illegal political activities in communities that would be adversely affected by MWD water heists should be prosecuted. What are we paying the BLM Desert Rangers and Special Investigators for??? G13-8

Instead, when citizens (i.e. ME) speak out about what MWD is doing, the MWD thugs at the law offices of Best, Best and Krieger terrorize and wrongfully and maliciously prosecute, with taxpayer dollars and mob tactics. For example, MWD's attorneys at BB&K are the same attorneys which represented the City of Needles when $450,000 in City funds were diverted and/or misallocated when the money was supposed to be used for the specific purpose of installing a water well test/development program in Ward Valley on my vote as a Needles City Councilmember. The money was misallocated, the project died, but the responsible parties were not prosecuted for misappropriating the funds. Instead, BB&K prosecuted me on trumped up, malicious charges about an unrelated issue which they did not win, but in the process caused me allot of pain, suffering and expense. This is the kind of political tactics that MWD and their attorney's BB&K use against political participants who oppose what they are doing. And, as it turns out, our new Governor appears unlikely to do anything about it, since he is right in there, friends with Cadiz's Brackpool and apparently the MET boys downtown. I would still like to know where that $450,000 went to??? Meanwhile, the Fenner wells will down draft the Ward Valley aquifer, so there will be no need for the people of the City of Needles to worry about making any money off of water sales.

7) STOLEN WATER and a deficit of over forty years worth of natural recharge in Fenner, Ward and Piute Valley, by mining two million acre feet of water of pristine, relic water that is not rightfully their own and not for use for beneficial purposes within the basin from which it is being taken. G13-9

So what is really happening? This project is in reality a heist of ground water in the Fenner, Ward and Piute Valley upstream from the private corporate "farm" Cadiz of Santa Monica. At my last review of the law, it was illegal to mine water from a basin for transfer to another basin, without the permission of the land owners in the basin. Unless the law has changed, the agencies responsible for the subject EIS/R have been engaging in a scheme, an illegal taking of property. The legal term for what amounts to more than one person scheming to take or destroy someone else's property illegally is "conspiracy."

The state should be requiring Brackpool & CO (Cadiz) to pay for any water transfers to their farm from the Colorado River. It is a slap in the publics face to tell us that 1) we must pay Cadiz to take our water, 2) we must pay Cadiz to store our water, 3) we must pay Cadiz when we want to use our water. The Chief Executive Officer of Cadiz is Keith Brackpool. Governor Davis' top water advisor by all appearances, is Keith Brackpool, who (according to reports on file with this office) donated $133,000. to then-candidate Gray Davis in 1998. This is an absolute insult to the intelligence of People of State of

California. What a disappointment to see Governor Davis filling key political appointments with his campaign contributors who own stock in Cadiz, and whose future donations to his campaign have a good chance of being reaped from dividends of the very project which the Governor seeks to subsidize with public funds, via a $50,000,000 bond issue and large payments out of the MWD in the name of "water storage." Rusy Arias, who was Cadiz' lobbyist, is now Governor Davis' Chief of State Parks. Of course that will mean he will oversee the doings at Diamond Lake (Dominigoni Dam, East Side Reservoir, Hemet) where Colorado River/Fenner Valley water appears to be headed. So Hemet gets the water that in reality belongs to the people living on the Lower Colorado River. The economic impact of transferring recreation opportunities to Hemet and depriving the Colorado River region of economic/ recreation opportunity was not discussed in the EIS/R and this is a major flaw and deficiency in the report.

Further, what incremental payments that Cadiz will specifically receive from State funds since Proposition 13 passed is something that the public should be informed of. To what extent is this private company being subsidized by the State?

The title on the cover of this document "...Dry-Year Supply" is a cover-up of the real intent of this project. The title of the document is more appropriately named "How to divert millions of rate payer dollars into the hands of politicians and their friends." Simply, the project amounts to no more than the taking of millions of excess funds being charged to Southern California water rate payers and diverting it to a shell company (Cadiz) where the money can then be distributed to stock holders who kickback(?) and contribute to the campaigns of the officials who are behind this project. And what a well devised and perfectly executed plan it has been up until this point. The EIS/R has all the characteristics of a legal document. The cost of writing it was paid for by the State in the name of public benefit.

7a) unfair and wrongful curtailment of the natural flow of underground streams to existing beneficial uses such as in Needles and Havasu Landing, California and a deficit of over forty years worth of natural recharge in Fenner, Ward and Piute Valley, by mining two million acre feet of water of pristine, relic water that is not rightfully their own and not for use for beneficial purposes within the basin from which it is being taken.

This deficit and its effect upon the flow of groundwater, natural springs, artesian wells, and wildlife that depend upon these water resources should have been more carefully analyzed in the draft EIS/R. When the salt water from Bristol and Cadiz Lakes flows to fill the cone of depression beneath the extraction wells, that pristine aquifer will be meaningfully degraded forever. This is probably against the law and clearly against the spirit of sensible groundwater management.

Curiously and suspiciously, the EIS/R inadequately and inaccurately portrays the connection of the underground aquifers which include Fenner, Piute and Ward Valley. Various geological/hydrological studies document the connection of the aquifers and the present EIS/R inadequately addresses the conclusions made in reports prepared for the Cataellis Corporation and the City of Needles (Law/Crandal) that these aquifers are connected and that an interchange of basin water exists. Further, USGS Geologists/hydrologists (including Howard Wilshire) documented connecting pathways in reports made to the National Academy of Science, more public record which was inadequately cited in the present EIS/R. Inadequately, or not addressed at all is the adverse impact which the down draft of water in the Fenner Valley would have upon the connected aquifer in Ward Valley which is tributary to the wells in Needles and the Havasu Landing. Necessary test wells and geologic data such as faults, fissures and valleys in the connecting links between Fenner and Ward are lacking in the report. Ground water flow patterns have not been tested adequately, thus the impact of the wells at Fenner upon the surrounding wells and springs are unknown.

It is understood that a USGS scientist said in a Feb. 23 letter to the U.S. Bureau of land Management that the assumptions used to estimate the recharge rate were "not defensible" and that the plan assumes

the groundwater will be naturally replenished five to 25 times faster than is possible. The USGS, should determine if the figure would be "defensible" if replenishment by Ward Valley and Piute Valley aquifers were figured into the calculation. My own research indicates that it would be possible to draft 2 million acre feet of native water by putting in wells in Fenner, however the area impacted would include basins that go far beyond Fenner—down drafting that much water in Fenner would adversely effect the recharge in Piute Valley, Ward Valley, Needles, Havasu Landing, and all of the wells and natural springs in and in between; further, the EIS/R is inadequate and deficient because it does not address the impact of the project upon wildlife, recreation, agriculture, economic development and human populations in these areas. G13-10

8) MORE STOLEN WATER: Stolen water is stolen water, no matter what bank it is put in. "The plan is part of several large storage projects designed to wean California down to its legal share of Colorado River water..." (Andrew Silver, San Bernardino Co. Sun, March 4, 2000). The proposed project is an attempt to steal the water now, while the MWD can still get away with it. This plan proposes an illegal act, "theft." Proposed is the taking of Colorado River water that is more than the MWD's legal allocation, so that it can be held by the MWD for a time when they project there will be a profit on it. Any MWD proposal to increase its present Colorado River water allocation should be addressed in a separate EIS which should be circulated to all of the affected States and Countries. G13-11

The various scenarios serve to confuse the public as to the REAL purpose of this project which goes unstated but should be described as a costly scheme to divert public funds for private and political purposes by engaging in an unnecessary water transfer project. The various scenarios described, in effect, leave the public with no idea of what the real project is: Will the millions of acre feet of water be transferred over a period of 50 years or will it all be transferred early on, in the first year, to fill up the East Side Reservoir (Diamond Reservoir)? We really don't know and it really makes a difference in reporting the effect upon the environment. The draft EIS/R is deficient, misleading, confusing and dishonest.

8a) BETRAYAL of the true adverse impact of the project upon the ecosystems/ environment of the Lower Colorado River and the Gulf of California. Proposed is the "taking" or heist of more Colorado River water than is legally allocated to the MWD. The present EIS/R should be predicated by a "LOWER COLORADO RIVER Environmental Impact Statement" prepared by the Department of the Interior to determine what effect the present allocation of water and "surplus" water is having upon the environments of Lower Colorado River/Gulf of California ecosystem and what impact an increase allocation might have. G13-12

9) ENVIRONMENTAL INJUSTICE: The MWD already extracts more than its legal share of Colorado River water, calling it "surplus." Has the MWD/BLM requested comments from the Mexican Consulate? What is Mexico's stand on this new water heist project. Wouldn't this EIS be more appropriately named the "Kill Native American/Mexican Children South of the Border EIS" since cutting off the water supply to northwestern Mexico has certainly been responsible for this? The EIS/R fails to address the issue of the effect of diminishing tributary ground water into the Needles and Havasu Land water system. The people in these communities are economically depressed and politically disenfranchised. Minority Hispanics, Native Americans, Mojaves, Southern Paiute, Navajo, and Hopi and Children of all colors are a major part of the population, and will be adversely affected by the project, but socioeconomic factors are not addressed in the EIS/R. G13-13

10) FAILURE TO ADDRESS THE STATUS QUO ALTERNATIVE: The no project alternative should be the 9,600 acres of farming as it stands now, using only water resources that are naturally recharged—but this alternative is not included. The EIS/R is lacking in addressing the issue of pollution from pesticides/herbicides used on the farm. Are these chemicals polluting the water downstream, and is this another reason why the MWD does not propose wells downstream and closer to the aqueduct? G13-14

If the Cadiz Farm operation were a high-tech operation, they would, more than likely, police themselves with regard to a significant degradation of the groundwater resource. In accordance with the plans called for in this EIS/R, it appears that Cadiz Farms are going to mine the water and move on. This EIS/R proves that Keith Brackpool, Ted Dutton and company were not serious farmers, but simply water speculators with friends in the "right" places.

Missing from the EIS/R is a copy of the current agreement between Cadiz and Metropolitan Water District. I am requesting a copy of this agreement under the California Records Act, whether or not it is included in the EIS/R

WATER, DOLLAR, AND POWER TO THE PEOPLE—NOT THE MW(OB) D.

Submitted by,

Ruth Lopez

760/326-4318 or 760/326-2519

G14

PEOPLE AGAINST RADIOACTIVE DUMPING
424 "E" Street
Needles, CA 92363
760/326-4318

March 8, 2000

Governor Gray Davis
State Capitol
Sacramento, California

Mr. Tim Salt, District Manager
California Desert District, Bureau of Land Management
United States Department of the Interior
6221 Box Springs Boulevard
Riverside, CA 92507-0714 CERTIFIED MAIL NO. Z 261 983 420
Attention: Mr. James Williams VIA FAX 1 909/697-5299

Ms. Molly Brady, Area Manager
Needles Field Office
Spikes Road
Needles, CA 92363 VIA FAX 1 760/326-7099

Mr. Stephen N. Arakawa, Manager
Water Resource Management Group
Metropolitan Water District - a California Public Agency
P. O. Box 54153
Los Angeles, CA 90054-0153 CERTIFIED MAIL NO. Z 261 983 418
Attention: Mr. Dirk Reed, Mr. Jack Safely VIA FAX 1 213/217-6119

San Bernardino County Supervisors VIA FAX 1 909/387-3223
County of San Bernardino, Planning Division
385 N. Arrowhead Ave
San Bernardino, California 92415-0181

Re: COMMENTS AND ALLEGATIONS WITH REGARD TO THE PROPOSED "CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM DRAFT ENVIRONMENTAL IMPACT REPORT DRAFT ENVIRONMENTAL IMPACT STATEMENT SCH. No. 99021039" AKA THE
"DILUTION OF CONTAMINATED COLORADO RIVER WATER AND CONFORMING TO DRINKING WATER STANDARDS PROJECT"

Dear Governor Davis and Supervisor Davis, Mr. Tim Salt, Mr. Stephen N. Arakawa, San Bernardino County Board of Supervisors;

People Against Radioactive Dumping (PARD) objects to the injection of Colorado River water contaminated with radioactive elements into natural and pristine desert aquifers such as the subject Fenner Basin groundwater basin. Public record has shown that the Colorado River is contaminated with radiation from the Atlas Mine, bomb testing fall out, and sewerage discharges from industrial and medical wastes upstream (Las Vegas, Laughlin, Bullhead, Needles). The subject EIS/R is deficient in that it does not provide an

G14-1

analysis of the radioactive elements in water samples taken from the Colorado River, and thus inadequately describes the effect of injecting radioactive elements included in Colorado River water into the groundwater basin at Fenner. Further, not analyzed, is the effect that such radioactive materials injected into the ground water basin at Fenner would have upon existing basin mineral deposits which are being used for beneficial purposes, such as those at the chloride mines around Bristol Lake. Further testing and analysis of Colorado River water samples is needed to determine the total volume and type of radioactive isotopes which are in Colorado River water proposed to be mixed with pristine desert aquifers. G

PARD is concerned that the Environmental Protection Agency may not be aware of the subject proposal. Strict EPA regulations prohibit/govern the injection of contaminated water into groundwater basins—is this the reason why the EIS/R never uses the word "injection" but instead refers to the proposed "spreading basins." Whether the mixing is accomplished through "injection" or through "spreading," the spirit of the law and good stewardship is violated when radioactively contaminated water is mixed with pristine desert aquifers in the California Desert Conservation Area. G

PARD represents 25,000 San Bernardino County residents who have signed our petitions to 1) require the responsible management of nuclear materials and 2) rewrite the nuclear waste management laws to reflect an honest classification of what is really being proposed for management, 3) manage nuclear waste according to longevity and level of toxicity/radioactivity—not by who produces/generates it or by where it comes from. In other words, it does not matter who makes it or where it comes from, the waste needs to be classified and managed according to how dangerous it is and how long that danger will last. G

Submitted by,

Ruth Lopez

Ruth Lopez
Director
People Against Radioactive Dumping
760/326-4318 or 760/326-2519

RECEIVED
BUREAU OF LAND MGMT.
00 FEB -9 AM 11:04
CALIF. DESERT DISTRICT
RIVERSIDE, CA.

G15

Attn: Mr. James Williams
U.S. Department of the Interior,
Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714

January 13, 2000

Re: Comments by *DESERT WATCH* on the Metropolitan Water District of Southern California - Draft Environmental Impact Report/Environmental Impact Statement Cadiz Groundwater Storage and Dry-Year Supply Program San Bernardino, California.

Dear Mr. Williams;

G15-1 Attached hereto are the comments submitted by *DESERT WATCH* on the Draft Environmental Impact Report/Environmental Impact Statement of the Metropolitan Water District of Southern California Cadiz Groundwater Storage and Dry-Year Supply Program in San Bernardino County, California.

G15-2 The "Lead Agency", Metropolitan Water District of Southern California (MWD), is sharing its responsibility as a Project Proponent with a private partner, The Cadiz Land Company. As a Lead Agency, MWD is also responsible under the National Environmental Protection Act (NEPA) EIR/EIS process to provide full and accurate disclosures of all feasible project alternatives, and their potential adverse impacts as specified under 40 CFR §1502.14, subd. (e).

G15-3 However, after conducting a thorough review of the Cadiz Project EIR/EIS and it's supporting technical reports, *DESERT WATCH* is concerned that the document fails to meet requirements that it discloses and considers every alternative in detail, including the proposed action, so that reviewers may evaluate their comparative merits.

G15-4 *DESERT WATCH* has found that the draft EIS/EIR does not adequately integrate appropriate survey and study methodologies in the NEPA analysis as required under the Fish and Wildlife Coordination Act (16, USC § 661 *et seq.*). As required under 40 CFR § 1502.22, the document also fails to provide a summary of existing credible scientific evidence for it's evaluation of numerous impacts, particularly given the unknowns that were encountered in the survey results and findings, and for the unsubstantiated use of the terms "minor " or "not-significant" given as conclusions for the many impacts throughout the document.

G15-5 Additionally, the document fails to; 1) provide full and accurate disclosures of all feasible project alternatives and their potential adverse impacts as required under 40 CFR §1502.14, subd. (e); 2) provide adequate conclusions based on fully integrated survey and study methodologies that are accepted by the general scientific community in the NEPA analysis as required under the Fish and Wildlife Coordination Act (16, USC § 661 *et seq.*) and; 3) provide, as required under 40 CFR § 1502.22, a summary of existing credible scientific evidence for it's evaluations of numerous impacts that are either not substantiated or supported by the analysis or credible evidence.

G15-6

G15-7 As a result of these omissions and inadequacies in the current EIS/EIR document, it should be revised and recirculated with the inclusion of the following additional information, analysis and mitigation measures as described hereto.

G15-8 *DESERT WATCH* appreciates the opportunity to comment on the EIR/EIS, and urges the Bureau of Land Management to consider carefully these comments prior to certifying the Final EIR/EIS or Finding of No Significant Impacts for the project.

Sincerely,

Edward A. Hartung
Executive Director, *DESERT WATCH*

cc: U.S. Fish and Wildlife Service

Proposed Project Alternatives

The proposed alternatives do not adequately explore reasonable measures that would significantly reduce impacts caused by the project (40 CFR §1502.14, subd. (c).). A change in the California Desert Conservation Area Plan (CDCA) is also proposed, however ***DESERT WATCH*** contends that any amendments to the CDCA would be unnecessary with the following changes to the project alternatives;

G15-9

1. Contrary to the EIR/EIS, the proposed alternatives do not take into account existing utility corridors that are within the project boundary areas. As shown on figures ES-1and ES-4 in the EIR/EIS, an existing powerline utility and dirt road owned and maintained by MWD runs north of Iron Mountain Pumping Plant across Darby Lake and intersects the main dirt road (Cadiz Road) that the proposed alignments follow north of Chubbuck. If used, this alternative route would substantially decrease the extent of habitat, and other impacts that the project would create by well over 50%.

2. None of the alternatives utilize existing utility corridors, roadways or areas with disturbed habitat along the route. Substantial avoidance of habitat impacts, over 50% of the total proposed, would be possible if the alignments were built in the existing Cadiz Road, or immediately adjacent to it, between Chubbuck north to McCoy. The proposed alternatives are unnecessarily routed away from existing roadbeds and predisturbed areas adjacent to them and are placed unnessesarily in undisturbed habitat.

G15-10

3. The document dismisses the possible routing of the pipeline through salt playas as a feasible alternative. Difficulties of routing the pipeline through the saline lakebed listed by the proponent (such as high maintenance due to corrosiveness, and brine groundwater disposal difficulties) can be easily remedied with appropriate engineering measures such as the use of non-corrosive pipeline materials or cathodic protection in sections that warrant their use. Disposal of brine groundwater pumped during construction can be easily remedied by transferring it in temporary above ground lines to the brine-water evaporation ponds at the nearby salt mining operations in the middle of the lakebeds. The salt operations utilize such water for their operations. This alternative would not significantly increase the total cost of the project for the proponent, however the total reduction of environmental impacts of this alternative would be significant. Routing the proposed pipeline on an existing utility corridor and road owned and operated by the proponent north of Iron Mountain through Danby Lake Bed, then routing the pipeline northwest immediately adjacent to Cadiz Road would decrease the total area of habitat impacted by the entire project by over 90%.

Biological Resources

Wildlife Communities

1. The document states in section 5-144 that "...only a relatively low diversity of native wildlife has adapted to these conditions..." and continues "most forms of wildlife occupying desert ecosystems are generally sparsely distributed...", and "wildlife species inhabiting desert regions are specifically adapted to conditions that would generally prohibit most wildlife use". The document then states that "man made habitats in the project area ...may also meet specialized habitat or resource requirements of certain special interest species".

G15-11

The preceding statements have no biological credibility. While it is true that desert ecosystems are filled with populations of plants and animals with highly specialized adaptations, the document contends that artificial and disturbed habitat created by the project will not be detrimental to native special interest species. No other impact will cause a greater effect on the local desert ecosystem and the native species that occupy it than the introduction of artificial and disturbed habitat. Impacts from the importation of weed species, invasive exotic plants and animals, and imbalances caused by the population increase of native species such as ravens, rabbits, and coyotes because of agriculture and disturbed land will inversely impact other native species.

Plant Species

1. The document states in section 5-152 that "Although rainfall was low during the 1998 to 1999 season, the remainder of the special interest annual plant species... have a minimal to moderate likelihood to occur within project construction and operation areas. Special interest perennial plant species not observed in the field are unlikely to occur" and additionally, according to the document, plant surveys were conducted only during one growing season for the project between March and May of 1999 (page 12, Biological Technical Report).

The assumption is used throughout the document that sensitive species "not detected" during the single survey period are wrongfully assumed as "not present". Absence of Evidence has been used to infer Evidence of Absence, however surveys were anything but conclusive. The document fails to disclose that during the 1999 growing season, a dry year resulted in zero percent rainfall through most of the eastern Mojave Desert (National Weather Bureau Records for the eastern San Bernardino County in 1999/1998). This lack of rain resulted in a lack of annual plant growth, and forced many perennial plants to remain dormant all year. It was not possible to detect many plant species during the 1999 spring season in the eastern Mojave due to this condition, therefore "no finding", "no impact" and "not present" conclusions made as a result of negative-findings obtained during a single-season plant survey are not possible.

It is therefore necessary to assume that any prior occurrences of sensitive species documented in literature and in the California Department of Fish and Game Natural Diversity Data Base that are within the same type of habitat and in the same regional area (i.e., basin or mountain range) should be considered as likely to occur and weighed accordingly in determining significance of impacts of the project.

Wildlife Species

The following inadequacies were evident in the biological surveys as noted in the Biological Technical Report;

1. Page 19. The area called the "Southern Transmission Line" appears to consist of rocky outcrops suitable for numerous species dependent on this habitat type. There is no mention of sensitive species such as desert bighorn sheep, desert rosy boa, chuckwalla, and desert mule deer in this area, even though they occur in the region according to the California Department of Fish and Game, Natural Diversity Database. Additionally, other sensitive species including raptors such as golden eagles, peregrine and prairie falcons, and mammals such as mountain lions and even bats utilize rocky areas as denning and hibernating areas, and are likely to be present. None of these species have been mentioned as potentially impacted in the "Southern Transmission Line" alignment, nor in any mitigation measures pertaining to it.

2. Page 20. The habitat maps used for assessing total project impacts of the project on plant communities appear to be incorrect, particularly for estimates of impacts on fringe-toed lizard populations and other specialized habitat dependent species. In the Biological Technical Report, a field survey report states that "...based on field observations, the map was inaccurate and could not be used to determine the relative impact of a given alignment on the species."

   DESERT WATCH is greatly concerned that the erroneous data portrayed in the above mentioned maps was used by the proponent to estimate total acreage of impacts and to calculate mitigation land purchases. There are no explanations in either the EIR/EIS or the Biological Technical Report that state how, or if, these inadequacies in the project maps were subsequently verified and corrected.

3. Page 21. According to the document, a biological survey was conducted on June 5th, 1999 along the "Southern Transmission Line". The survey reported the presence of "abundant tortoise sign", however it also reports that "no new plant or animal species were detected...". The timing of this survey was beyond the typical flowering period of most desert annuals, even in normal rainfall years, and could not possibly serve as a reliable botanical survey to determine absence/presence of sensitive plant species. Additionally, no other biological surveys are mentioned in the document or appear to

have been conducted in this location for other sensitive species and at times specific for species such as migratory birds, or night surveys for nocturnal reptiles and mammals. G15-15

Desert Tortoise

Given the harsh environment of the eastern Mojave in the Cadiz Valley region, it is remarkable that so much desert tortoise evidence was detected as indicated on figure 5.8-2. Based on the locations indicated throughout the project area for burrows, scat, carcasses and tracks, it is evident that the project will indeed impact this species on all of the proposed alignments. Although tortoise densities are generally documented as low in the project region by U.S. Fish and Wildlife Service, the presence of a small number of tortoises in "low density areas" becomes even more significant to population survival, longevity, and recovery in the region. In areas with low-density populations, the importance of each individual contributing to the gene pool and ensuing longevity of the area's population is magnified. It is therefore extremely important that the lowest number of take be permitted, and that mitigation for loss of habitat of this species be maximized to ensure survival of the population. G15-16

The following mitigation measures proposed under the EIR/EIS to protect desert tortoises are insufficient, and they do not conform to current U.S. Fish and Wildlife Service and the Desert Tortoise Council 1999 standards. G15-17

1. Measure B-18 This measure is inadequate because as mandated under the Tortoise Monitoring Guidelines, only authorized monitors should be used to inspect and clear all construction vehicles prior to them being authorized to move at the start of each day. G15-18

   Vehicles not checked should remain idle until cleared by a monitor. Tortoises have the habit of using parked vehicles as resting and shading/cooling off spots. It is extremely easy to overlook this and many tortoises have been accidentally killed when vehicles were moved. Even if they were not directly driven over, tortoises can quickly succumb to overheating when their shade is removed during the heat of day. Additional requirements regarding moving tortoises during acceptable temperatures apply, see "Temperature Range and Moving Tortoises" section below.

2. Measures B-10, B-13, and B-18 correctly stipulate that only certified personnel may handle desert tortoises. However, mitigation measure B-28 conflicts with standard guidelines in that it authorizes untrained, and uncertified project employees to handle and move desert tortoises, and authorizes them to make discretionary decisions regarding moving construction vehicles away from resting tortoises. G15-19

   The only time such an employee would ever be allowed to move a tortoise is if the animal is in immediate peril such as crossing a busy public roadway, or other hazardous situation where the tortoise is in danger because traffic cannot be stopped or routed around it. Never should an untrained person be authorized to handle or move a tortoise in order to clear a parked construction vehicle.

   Under measure B-28, direct harm leading to death may occur if improper handling occurs. Tortoises sheltering during the heat of day under the shade of a parked vehicle will die if the vehicle providing shade is moved and they cannot find shelter in time. They will also expel water if frightened, which will lead to water stress and death during the dry season. This condition may occur if the tortoise is moved carelessly, or if a loud noise such as a starting engine occurs over them. Even a well intentioned, however untrained, person moving a tortoise can cause death by gently rotating the animal and causing the internal organs to twist, or to cause it to void water. In order to avoid any take, the movement and relocation of any tortoise should be conducted only by an authorized, permitted person. Additional requirements regarding moving tortoises during acceptable temperatures apply, see "Temperature Range and Moving Tortoises" section below.

3. B-21 Avoidance of other raven encouraging activities such as over-watering roads and construction areas for dust control to the degree that pools form for ravens to drink out of should also be stipulated as a mitigation measure, because water will be more significant as an attractant to ravens than food during the dry months. G15-

4. B-22 A chain link fence will not provide a suitable barrier to juvenile desert tortoises. The measure should specify that the minimal mesh size of the fence should be no more than 1.5 inches, including the width of corner to opposite corner of the mesh. G15-

5. B-24 All power lines as well as their supporting poles, fences, and buildings will provide perching and nesting habitat for ravens. In addition, trees and other landscaping at facilities idle equipment, and any other flat spot above the ground with some overhead shade will provide prime raven nesting locations. G15-

   Additional measures to provide for predator nest checks and removal by authorized biologists should also be included to mitigate for the increase of raven populations created by the project. If bird nests are determined to belong to protected species nests such as raptors or other migratory species, they must be retained until the end of the breeding cycle under the Federal Migratory Bird Act. G15-

6. B-25 As specified under current 1999 Desert Tortoise Monitoring Protocols accepted by the U.S. Fish and Wildlife Service and the Desert Tortoise Council, guidelines for desert tortoise monitoring state that "tortoise clearance surveys must be made no more than three days prior to construction." Given the relatively large home range and sometimes cryptic behavior of desert tortoises, it would be likely that nearby tortoises (even as far as ½ mile away) may wander into the construction area given the 30 day window in this measure. Furthermore, in addition to tortoise burrow excavation accepted protocols also require that any tortoises or eggs found must be relocated to artificial burrows off-site. G15-

Temperature Range and Moving Tortoises

As specified under current 1999 Desert Tortoise Monitoring Protocols accepted by the U.S. Fish and Wildlife Service and the Desert Tortoise Council, guidelines for moving desert tortoises state that "ambient air and ground temperatures must be within acceptable ranges prior to moving a desert tortoise." If a tortoise is to be moved outside of the acceptable temperature range, provisions must be made to ensure that the tortoise will be placed in a protective area until it can be safely released under the correct temperature. Relocation from a burrow or shaded area into a artificial burrow, or in a temporary box shelter kept cool indoors are acceptable methods for moving tortoises if the air temperature exceeds maximum standards. All mitigation measures regarding movement and relocation of tortoises must take this requirement into account to protect the animal. G15-

Document Inconsistencies

DESERT WATCH finds that the EIR/EIS Executive Summary (ES) incorrectly surmises that the Cadiz Project "would not cause an irreversible or irretrievable commitment of resources". However, there are inconsistent findings and interpretations, coupled with inadequate analysis throughout the EIR/EIS document and its technical documents that contradict the ES and violate 40 CFR § 1502.22. Through these faults, the EIR/EIS concludes that numerous impacts are "minor" or "not significant" without supporting evidence in any portion of the document. The ES also presents the following contradictory statements and fails to provide a summary of existing credible scientific evidence for them in the EIS/EIR; G15-

1. "...construction would involve replacement of topsoils and cryptogamic crust may eventually be reestablished, exposed soils would suffer some long-term loss during and following construction..." and then states that "most losses would be relatively minor". The document offers no data or analysis to substantiate the conclusion of this level of impact. G15-

2. "The Cadiz Project would have some minor long-term effects on water resources, including surface and sub-surface flows". No effects analysis are presented on desert riparian systems in the region, and no data or analysis to substantiate the conclusion exist as a result of this. G15-

3. "The Cadiz Project would result in minor irreversible and irretrievable impacts to habitats and the species that depend on them over the life of the project". The document offers no further data or analysis to substantiate this level of impact. G15-29

4. "there would be long-term loss of habitat..." and "...Mitigation for these losses would protect at least an equivalent area...resulting in no net long-term loss of habitat". However, total estimates of habitat loss are in question due to apparent mapping inconsistencies (See preceding section under Wildlife Species Section 2 above) and lack of analysis of "edge-effects". G15-30

5. "The construction and operation of the Cadiz Project would result in minor permanent and irreversible changes in the visual nature of the area" . The document offers no further data or analysis to substantiate the conclusions of this level of impact. G15-31

6. Section 8.3 states that "the impacts of the build alternatives on sensitive plant communities are "not significant", but then counters itself in Section 9.1.8. in that "The gradual revegetation of the areas within the Cadiz Project construction right of way would...be expected to be relatively slow, resulting in potential longer term adverse effects to these areas". G15-32

Cumulative Impacts of the Hayfield and Cadiz Projects G15-33

The following statements are used to explain a finding of no significant cumulative impacts, yet do not provide reasonable, or adequate evidence or analysis to substantiate them.

1. The Executive Summary states that "neither project would cause significant adverse aesthetic impacts during or following construction because both are in remote areas and both provide for visible facilities to be consistent with existing aesthetics". G15-34

   The document offers no further data or analysis to substantiate this level of impact. Wilderness Areas are by their very nature "remote areas", and given that they are also identified in the Wilderness Act of 1964 (16 USC 1131-1136) as "an area of undeveloped Federal land retaining it's primeval character" and "an area where the Earth and it's community of life are untrammeled by man", any ensuing aesthetic impacts – even if it is "consistent with existing aesthetics" - would be difficult to classify as "not significant", and are not substantiated in the document.

2. "Bio-resources mitigation plans for both projects would provide long-term protection of resources currently not protected, offsetting project related impacts". Many of the bio-resource mitigation measures within this document fail to provide sufficient, long-term protective measures and do not substantiate this statement. G15-35

3. "Neither project would have short or long-term impacts to wilderness areas or other recreation resources". There is an abundance of impacts disclosed in this document, and not disclosed, that conflict with this statement (i.e., see following section on Wilderness Area Issues), therefor this statement is incorrect. G15-36

Further Considerations

EIR/EIS

Wilderness Area Issues

The document presents the assumption that project impacts to Wilderness Areas will be minor, yet acknowledges that they will be permanently impacted visually by structures placed close to them. Furthermore, the document fails to disclose that cumulative impacts to Wilderness Areas will be significant due to the increase of impacts resulting from increased vehicle use, i.e. increased maintenance traffic, and unregulated off-highway vehicle access along their borders due to new maintenance roads. G15-37

These impacts are substantiated in Section 3-40 in the EIR/EIS, stating that "all wilderness areas will be effected by visual impacts during and after construction". Section 7.5.17 further states that "... the project would not directly impact any wilderness, though parts of the Cadiz Project are adjacent to wilderness areas...", and "...visitors to the wilderness areas would have off-site views of the construction... and some construction activity may be audible in those areas...". G15

Additional impacts to Wilderness Areas are to be anticipated by the placement of construction "staging areas" called out in the document that are to be placed adjacent to them, however these impacts are not disclosed in the document (See Measure B-5 below). G15-

Section 5.17.1 of the EIR/EIS also states that Public Law 103-433, 108 stat. 4471, which is now S21 HR(518) the California Desert Protection Act, states that the designation of wilderness areas were not intended to lead to the creation of protective buffer zones around them, and that nonwilderness uses near Wilderness Areas shall not be precluded. However, the EIR/EIS fails to document that Section 103 of S21 HR(518) pertains to EXISTING RIGHTS, under which wilderness areas designated under section 102 of the same act shall be administered in accordance to the wilderness act. Neither Public Law 103-433, 108 stat. 4471 or S21 HR(518) prevent the creation of protective buffer zones, or the continuation of current protective regulations on existing public lands that are managed by the Bureau of Land Management adjacent to Wilderness Areas. G15-

The EIR/EIS should also consider and discuss the implications of regulations in S21 HR (518), and the Boulder Canyon Project Act 43 USC 617-619b, sec. 604, which explicitly prohibits Metropolitan Water District of Southern California from impacting any Wilderness Areas defined in S21 HR (518), including the Old Woman Mountains Wilderness Area, and the Cadiz Dunes Wilderness Area.

Measure B-1. Section 8.3 states that "the impacts of the build alternatives on sensitive plant communities are not significant", but then counters itself in Section 9.1.8. in that "The gradual revegetation of the areas within the Cadiz Project construction right of way would...be expected to be relatively slow, resulting in potential longer term adverse effects to these areas". G15-

There is a assumption made in the document that impacts to desert soils and plants will be short-lived and will be restored in a insignificant period of time. It is generally accepted by the scientific community and very well documented by restoration experts that seemingly small amounts of soil compaction caused by vehicles, grazing animals, and other man-made means results in decades, if not centuries, of required time before recovery occurs.

The success rate of casting seeds as a revegetation measure in the desert may not provide satisfactory results upon completion of the project, even if given a five-year performance window. An generally accepted methodology for revegetation in arid-lands such as planting containerized stock with a two-year long supplementary watering schedule should be required in order to ensure plant development and long-term survivability, and suitable restoration of impacted areas.

Long-term monitoring should also be mandated to ensure that revegetation efforts meet set performance criteria, and if they do not do so, mitigation measure B-1 should be re-evaluated in order to obtain suitable results.

Measure B-4 and Measure B-23. This measure is inadequate in that it does not provide additional patrolling and maintenance measures to ensure that the roads, signs, fences, etc., remain intact and effective in perpetuity. This measure will place further costs and burden on the Bureau of Land Management, requiring additional resource protection duties, including patrolling on weekends and busy holidays, and increased maintenance costs of repairing signs and fences. ***DESERT WATCH*** recommends that the project proponent be required to provide financial assistance to the Bureau of Land Management in order to offset the increased operational costs that the agency will incur as a result of maintaining, patrolling and protecting the Wilderness Boundaries that will be placed at potential risk due to the project. G15-

Furthermore, the proposed maintenance roads will extend habitat loss with a pronounced "Edge Effect" along their entire lengths. They will encourage the development of illegal spur roads into canyons and washes that they intersect, threatening the Cadiz Dunes Wilderness Area, and to a lesser extent the Old Woman Mountains Wilderness Area, and other remote areas in the Kilbeck Hills and Iron Mountain. The total impact of these roads will significantly extend the cumulative impacts that the project causes, and do not appear in the analysis of impacts stated in the document. G15-41

Measure B-5. The designated staging areas as shown in the document are near wildlife and wilderness sensitive areas. Page 4-53 of the EIR/EIS shows a construction staging area that appears to be less than 50' from the Cadiz Dunes Wilderness Boundary, and near the Kilbeck Hills. All construction staging areas should be placed not less than ½ mile from wilderness boundaries or other sensitive habitat areas. G15-42

Additionally, the document does not discuss the potential impacts caused by the "Staging Areas" to the Wilderness Areas (i.e., potential for vehicular trespass, construction noise, lights, trash, etc.). G15-43

Measure B-6. This measure appropriately accesses mitigation for potential impacts to burrowing owls, however the document does not provide mitigation monitoring for nesting raptors (i.e. golden eagles and peregrine falcons), or other sensitive wildlife in other suitable habitat such as rocky areas during blasting and other construction activities. G15-44

Measure B-7. This measure adequately accesses mitigation for burrowing mammal monitoring, however it does not stipulate burrow clearance and burrow removal upon clearance to avoid reoccupation of burrows after clearance surveys are completed, and should do so. G15-45

Measure B-8. Due to the economic nature of construction schedules, etc., and the nature of the relationship MWD has to the project, the appointment of a field contract representative should be made by the neutral Lead Agency (Bureau of Land Management), and not be a project proponent employee. It is unwise to permit employees of the project proponent to be in charge of their own compliance monitoring. G15-46

Measure B-9. This measure is appropriate, except that there is no approved video that a project proponent can show to it's own employees in order to meet tortoise education requirements without a trained instructor. All employees should be required to attend pre-construction meetings with approved instructors prior to any work assignments. Untrained contractors, or temporary employees that enter the job site, i.e. delivery drivers, will create the largest potential worker-related impacts to desert tortoises. Appropriate job site entry signage, a staffed "check point", and the use of an appropriate number of monitors will lessen the potential for tortoise fatalities or tortoise theft by these personnel. G15-47

Measure B-11. Again, construction scheduling should be implemented to avoid raptor nesting, sheep and deer lambing, and other sensitive species reproduction or hibernation schedules in order to prevent impacts during critical times in critical habitat areas. This inadequacy is also evident in **Construction Measure N-2** (page 5-230), that does not provide for blasting scheduling to prevent impacts to sensitive species. G15-48

Measure B-12. ***DESERT WATCH*** is concerned that as written, this measure allows the proponent to cause unmitigated impacts to the open desert by allowing construction personnel to drive off-road "when absolutely required by the Project". G15-49

Even a single vehicle conducting a single one-way trip through open desert causes erosion and impacts that will persist for decades. Due to the sensitivity of desert soils to even seemingly small impacts, it is critical that open-desert habitat adjacent to the project areas be fully protected. Measure B-12 should state that "under no circumstances are construction personnel to drive off-road in any area beyond the permitted project boundary without the prior consultation and consent of the Bureau of Land Management"..

G-116

March 7, 2000

Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054-1053
Attention:
Mr. Dirk Reed
Mr. Jack Safely

Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714
Attention:
Mr. James Williams

Subject: **Environmental Defense Comments on Cadiz Groundwater Storage and Dry Year Supply Program (Draft Environmental Impact Report/ Draft Environmental Impact Statement, SCH. No. 99021039)**

Dear Sirs:

Environmental Defense has reviewed the draft EIR/EIS for the proposed Cadiz Groundwater Storage and Dry Year Supply Program (Cadiz Project), as well as the February 23, 2000, memorandum from the United States Geological Survey which addresses some of the technical parameters of the project. Environmental Defense supports appropriate use of groundwater storage as a principal component of the integrated management of California's water resources. Nevertheless, we find that the draft EIR/EIS does not adequately address an appropriate range of the environmental impacts that may result from the operations of the Cadiz Project. G116-1

The EIR/EIS evaluates nine alternative storage/transfer operational scenarios. Only one of these, Alternative 9, could be truly characterized as a conjunctive use project, which would extract only the water transferred into the groundwater aquifer from the Colorado River. All other alternatives depend on extraction of local groundwater as a significant portion of the project's yield. Alternative 9 was eliminated from consideration as it would be too expensive on a unit cost basis (page 3-19). G116-2

Alternatives 1 through 6, which are "intended to define a range of probable Cadiz project storage and extraction operations; and to provide a basis for designing Cadiz project facilities and capacities", depend on a net withdrawal of between 1.3 and 2.0 million acre-feet of local water during the project period. In addition to this net withdrawal of local groundwater, the project would store and extract an additional 0.8 to 2.3 MAF of water from the Colorado River (Table 3-1).

The EIR/EIS assumes that this amount of net extraction of local water would be generally offset by 1.5 MAF of natural recharge over the project period (30,000 acre-feet per year over 50 years). The project's viability appears to depend heavily on this assumption. If the natural recharge rate is overestimated, then the alternatives evaluated by the EIR/EIS would not be representative of what would actually occur. Either the project would end up extracting only the volume of Colorado River water that it has put into the aquifer (as characterized by Alternative 9) or it would "mine" the indigenous groundwater without replacement. G116-3

As stated above, the EIR/EIS characterizes an alternative that extracts only the water diverted from the Colorado River and stored in the aquifer as too expensive. The EIR/EIS does not address the effects, pertaining either to water quality or to the local environment, of mining the indigenous groundwater. While the EIR/EIS notes that the total groundwater underlying the project area is between 3.65 and 6.69 MAF, it does not evaluate whether this amount (or anything close to it) can be safely extracted.

The EIR/EIS does warn that groundwater mining could be a problem (page 3-18): "if extractions of groundwater for transfer purposes create a significant depression in the groundwater levels under the wellfield, this saline groundwater [underlying nearby Bristol Dry Lake - 15 miles to the northeast] could flow down gradient towards this depression. Migration of this saline water would have adverse impacts on water quality in the wellfield and other areas."

The EIR/EIS also fails to address the local impacts of groundwater mining. As noted by the USGS, significant net extraction of groundwater may result in either a drying out of the upper layer sediments at Cadiz Dry Lake (or even Bristol Dry Lake) and the creation of dust problems, reminiscent of the problems caused by water project operations in the Owens Valley. Similarly, the EIR/EIS fails to address potential land subsidence, if the indigenous groundwater is extracted at rates that significantly exceed its recharge. Indeed, the Cadiz Project's EIR/EIS is heavily dependent on the accuracy of its assessment that the natural recharge to the underlying aquifer is as high as 30,000 acre-feet per year.

The analysis by the United States Geological Survey, however, suggests that this estimate may be significantly in error. This analysis calls into question the application of both the methodologies (Chlorine mass balance and Carbon-14 isotopes) used to support the EIR/EIS. The USGS goes on to offer persuasive evidence that the natural recharge is much lower than the estimates provided by the EIR/EIS, and may be as low as 1,710 acre-feet per year.

This discrepancy regarding natural recharge to the aquifer must be resolved, and a new draft EIR/EIS issued, which uses the best available technical information and which sets forth the responsibilities and policies of the two project lead agencies regarding the groundwater basins involved. The Cadiz Project should not be allowed to move forward in any form unless it includes operational criteria which specifically address whether any net extraction of groundwater is acceptable as a matter of federal and State policy, and if it is, how much and under what conditions. Ultimately, any Record of Decision should also include criteria for monitoring any net groundwater extraction, and for assessing water quality, air quality and land subsidence objectives, as well as which parties would bear the responsibility should these objectives not be met.

Sincerely,

Thomas J. Graff
Senior Attorney

Spreck Rosekrans
Senior Analyst

DESERT SURVIVORS
experience share protect

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G17

Molly Brady
Needles Field Office Manager
Bureau of Land Management
101 West Spikes Road
Needles, CA 92363

RE: CADIZ Groundwater Storage EIR -
Supplemental EIR, Extension of Comment Period Requested

Dear Ms Brady:

Desert Survivors recently received the Draft Environmental Impact Report for the Cadiz Groundwater Storage and Dry-Year Supply Program. We have completed an initial review of the material, formulated some questions, and have called and talked to staff of both the Metropolitan Water District and the Bureau of Land Management regarding the proposed project. There are several disturbing features: G17-1

Significant Native Groundwater Overdraft at End of ALL Scenarios G17-2

No Overall Groundwater Monitoring Program or Agency Accountability G17-3

Lack of Data or Monitoring Plan for Nearby BLM Wilderness Springs G17-4

Inconsistent and Missing Groundwater Balance Data in Scenarios G17-5

Vague and Missing Data on the Percentage of "Stored" Water which is Retrievable G17-6

No Coordination Plan for Simultaneous Groundwater Removal by Agriculture G17-7

No Supporting Evidence for 30,000 acre-feet as Sustainable Groundwater Removal G17-8

We need more time to react to this. This document is incomplete, inconsistent and does not present a plan which will allow a sustainable native groundwater regime. I understand from the Metropolitan Water District staff that they are currently working on a groundwater monitoring plan which may answer some of these deficiencies. I believe the public should have an opportunity to comment on a complete document. Either issue a supplemental EIR or release the monitoring plan as a appendix and allow an extension of the comment period so we can make reasonable comments on a better developed plan; not on the confusing, incomplete material available at present. G17-9, G17-10, G17-11

Groundwater issues have not so far been a large concern of the BLM in public lands management. However as our population builds and the pressures to consume increase, the schemes to extract the contents of these ancient natural reservoirs will increase as well. Desert Survivors supports efforts made by agency land managers to defend these natural resources in a sustainable manner for future generations. Lets have a full study of these groundwater issues. Using groundwater basins for storage may be a good idea if handled responsibly with full study and complete disclosure. This is NOT the case so far with the Cadiz Project. Don't yield to the temptation to give away this water for short-term gain; some of the effects will stay forever.

G
G
G
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Sincerely yours,

Bob Ellis, Director at Large
bobellisds@earthlink.net
Desert Survivors

cc: Tim Salt, BLM Desert District Manager
Al Wright, State BLM Director

December 28, 1999

P1

To Whom It May Concern
Metropolitan Water District of Southern California
P. O. Box 54153
Los Angeles, CA 90054-0153

Dear Sir/Madam:

I am pleased to submit my comments on the Draft Environmental Impact Report for the Cadiz Groundwater Storage and Dry Year Supply Program, Report No. 1157. P1-1

1. Incorrect No Project alternative

In November 1993 the San Bernardino board of Supervisors unanimously approved a General Plan Amendment establishing agricultural land use designation for 9,600 acres at Cadiz for which 1,600 acres have been developed and are leased to Sun World. This Board action represented the largest land use approval on behalf of a single property holder in the County's known history. This action also approved permits to build infrastructure and facilities to house as many as 1,150 seasonal workers and 170 permanent residents (employees and their families) and allowed for the withdrawal of more than 1 million acre-feet of groundwater from the company's underground water basin. The management and staff of Cadiz have a significant amount of expertise in that business. It would seem appropriate to have an expanded agricultural operation as the No Project alternative. Mr. Blackpool, the president and CEO of Cadiz, is on record opposing the fallowing of agricultural land as a means to develop new urban water supplies. A no-project alternative involving an expansion of agricultural operations in the Cadiz/Fenner valleys would reduce the potential yield of the project. P1-2

2. There is a potentially large impact to the flora and fauna in the project area due to the massive changes in groundwater management.

The historic groundwater/surface water dynamic in the project area has achieved a delicate balance. According to the Draft EIR/EIS, approximately 30,000 AF/yr of groundwater recharges the aquifer causing groundwater elevations to become very near the surface water elevations at the dry lake beds. (It is interesting that the Principles of Agreement between the Metropolitan Water District (MWD) and Cadiz contemplate indigenous water withdrawal rates greater than the natural recharge rate.) There is very little discussion of this balance and P1-3

how that balance might be upset by massive injections of new and saltier water from the Colorado River and/or long-term net depletions in groundwater quantities may also create such massive surface condition changes as to be a significant environmental impact.

The planned extraction and recharge facilities are strategically located in the pathway between groundwater recharge and the dry lake basins which are accompanied by and surrounded by saline groundwater conditions. If approximately 30,000 AF of Colorado River water were recharged each year, the extraction wells could recover that amount and there would be no net change in the groundwater surface as it neared the dry lakes. To the extent that groundwater recharge exceeded the extraction rate, which appears in each of the plans, the ground water level will rise in the recharge area and also between the recharge area and the dry lakes. The anticipated recharge rate exceeds the natural recharge rate by a factor of 5.0. This is well beyond normal variation in the natural recharge rate and will definitely raise the water table. It is likely that as the groundwater elevation approaches the ground surface elevation in areas where that had not occurred historically, a significant change in the surface plant life will occur which, in turn, will affect terrestrial species. It is also likely that as the groundwater elevation approaches the ground surface elevation that areas exposed to high groundwater elevations will also be suffering an increase in salinity which will significantly alter the species of plants able to survive the area.

Most of the plan's operating scenarios call for a net drawdown of the aquifer which, out of necessity, will lower the groundwater elevation as it approaches the dry lake beds and have just the opposite effect of what has been described above. The major swings (far more than what would occur naturally) in groundwater conditions are a bigger threat to the surface environment than simply raising or lowering the groundwater elevation. It appears that few or none of these issues have been raised in the Draft EIR/EIS and, because of that, there is a violation of at least the CEQA process.

3. Potential for an "Owens Lake effect" due to overpumping the groundwater basin.

When a major part of the Owens River was diverted to Southern California years ago, one result was the dramatic reduction of flows to Owens Lake which resulted in the lack of the rewatering of the dry lake and eventually a significant airborne pollution problem. This has not been taken into consideration in the draft document and is a CEQA defect.

4. The injection of Colorado River water into the project aquifer will result in a significant degradation of water quality within that aquifer.

The state laws that prohibit groundwater degradation are a little fuzzy and for good reason. The sophisticated management of a groundwater basin will often result in some level of water quality degradation. However, if that management scheme results in a substantially improved overall water management picture, intuitively it seems to be correct to tolerate that quantity of diminished groundwater water quality. The aquifers beneath Orange County are

such an example. Historically, the groundwater water prior to heavy pumping was of a very high quality because it was annually recharged with local low salinity runoff. Management of the aquifers beneath Orange County is frequently used as an example of how to properly maximize the use of groundwater assets even though there has been some loss of water quality suffered by those who are served by the groundwater. The tradeoff, of course, has been a dramatic increase in the reliability of water deliveries. The massive groundwater storage project contemplated in this case will result in a significant deterioration of water quality, at least downslope from the recharge areas. Depending upon the rate of indigenous water withdrawals, the water quality in the aquifer between the recharge area and the dry lakes could soon approach that of the Colorado River Aqueduct. Because Colorado River water contains so much salt, it functionally eliminates its use when waste water recycling is a consideration. In essence, if the project area aquifers reach a salinity level approaching that of the Colorado River Aqueduct, opportunities to recycle water within that groundwater basin become almost out of the question. That fact alone should define the potential level of significance for groundwater degradation. P1-5

. Reduced property values for other basin landowners. P1-6

The Cadiz project presumes to use all of the natural recharge to the basin for their own use even though their surface rights overlie a small percentage of the groundwater basin. Although groundwater law in California is very skimpy, it seems only fair that the other property owners should have reasonable access to the groundwater beneath their property and that use should not be impaired by a landowner who seeks to "over appropriate" the groundwater resource. Much of the land is in the control of the Bureau of Land Management, which is the federal lead agency for this project. The Bureau should be very sensitive to the diminished value of land held by the public sector and, for that reason alone, should condition any operation so that the groundwater resources of the basin can be shared among the landowners in proportion to their surface ownership.

. Lack of biological opinions. P1-7

In order to provide full disclosure, the environmental document should contain, at a bare minimum, biological assessments for the appropriate sensitive species. Those assessments should include the potential for the changes in flora and fauna associated with massive changes in groundwater conditions, especially where they occur near surface. They should also take into consideration the long-range impacts of excessively dry lakes described earlier as the "Owens Lake effect." Certainly a record of decision for this project cannot precede the issuance of non-jeopardy biological opinions on all of the appropriate species.

. Inadequate analysis of possible alternatives. P1-8

The project purpose is to protect and/or enhance water reliability for MWD service area. An exhaustive list of off Colorado River Aqueduct storage opportunities was investigated and

dismissed for various reasons including water quality, environmental and economic considerations. Alternatives other than off Colorado River Aqueduct groundwater storage projects should have been considered. Other groundwater opportunities exist in the San Joaquin Valley which would also serve to increase the ability of the State Water Project to improve the salinity mix for MWD customers. In earlier documents, MWD has identified some of the options which may be available as viable alternatives to the Cadiz program. The Department of Water Resources and CALFED have relatively current information regarding possible alternatives as well.

8. Avoid disruption of any surface flows.

The draft document suggests that there will be less than significant inference with surface flows. This is very important because desert life relies heavily on even very occasional surface flows to maintain its viability. If there is any attempt to capture surface flows for immediate use or direct recharge to groundwater basin, substantial environmental impacts will occur.

9. How does Cadiz really intend to operate the project?

Investor information pieces circulated by Everen Securities dated December 2, 1998 and September 15, 1999, had to have been a result of information passed from Cadiz to Everen. These two pieces lead one to believe that the project might be operated quite differently than what is indicated in the draft environmental document. The authors of the document and the lead agencies should view the above-referenced documents and consider what may be the most probable operating scenario for the project.

10. Possible conflicts of interest.

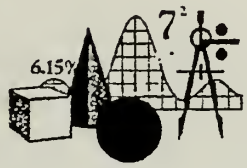
The hydro-geological firm that has done a significant amount of work for this project has received at least a part of its fee in the form of common stock in Cadiz. Does this represent conflict?

Please don't do a groundwater raid on the Cadiz/Fenner Basin.

A Friend of the Desert

A Friend of the Desert

Ramon A. Mendoza



20 January, 2000

P2

Dirk Reed
MWD of Southern California
P.O. Box 54153
Los Angeles, CA 90054-1053

Having completed reviewing the Draft Environmental Impact Report/Statement (EIR/EIS), I want to provide the following for the record: P2-1

- Review of Public Comments, Table 2, Summary of February 25, 1999, Ramon Mendoza P2-2
  - 2nd Bullet; Are we creating a vacuum taking from other basins?
    - This refers to the question asked about concern for water sources that may be interconnected with the Ward Valley and Chemehuevi Valley aquifers, into the Fenner/Cadiz project area. The point as documented seems lost in the mix of nonessential comments that were apparently said during the discussion in which the main point is as stated herein.
  - 4th Bullet; Requests that a study be done on the effects on all adjacent basins [those that surround Bristol, Cadiz and Fenner watersheds with those, such as Ward Valley. This too refers to the 2nd Bullet, specifically that at a minimum electro-resistivity tests be conducted, perhaps as part of the monitoring program. P2-3

Other points are, (Taken from the Environmental Planning Technical Reports, Vol. I & II): P2-4

Section 5.2:

> The average thickness of the upper aquifer at the Fenner Gap is approximately 500 feet (page 39, Vol. I) The maximum thickness of the lower aquifer is unknown but may reach over 6000 feet in the vicinity of Bristol Dry Lake (Maas1994)

Neither upper or lower aquifer water yield (% extraction) from a volume is projected. The same is true of the 3rd aquifer, "Based on findings during recent drilling work in the Fenner Gap area...located beneath the lower aquifer, contains groundwater and is considered a third aquifer unit (page 40, Vol. I)."

Section 5: P2-5

> As discussed in Section 6, estimates of the average amount of recoverable water (surface runoff plus ground water recharge) available to the Project area range from approximately 15,000 to 37,000 acre ft./yr. Based on the results of testing and analysis described in Section 7 and groundwater flow modeling described in Section 8, the amount of groundwater available to the Project area on an annual basis is estimated to be approximately 30,000 acre ft./yr. (page 41, Vol. I)

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Section 5.7:

> The mountain ranges that define the boundaries of the watersheds as well as the aquifer systems that underlie the Project area are composed primarily of impermeable granite and metamorphic bedrock (see Figure 13). Accordingly, the aquifer system occurs within contained area from which groundwater cannot escape.[how determined?] (page 45, Vol. I) Thus, a hydraulic connection between Bristol, Cadiz and Fenner watersheds and the neighboring groundwater basins is not likely [an assumption].

Note: Section 8, subsections 8.5.2 and 8.6 provide that the system would provide on/off initiates to the wells to maintain a constant 200 cfs flow rate. Further, historically, smaller amounts of water are recorded withdrawn since 1910. All amounts, totaling about 85,000 acre feet.

Given the project will store water taken from the Colorado Water Aqueduct and withdraw water from the Cadiz aquifer (150,000 ac-ft. during dry years)[a San Bernardino resource], it seems important to monitor the following:

1) Rate of withdrawal from the Cadiz aquifer, based on safe yield [to be determined]
2) Radioactive contamination/Ward Valley (threat from the proposed low-level nuclear dump)
3) Science of aquifer interconnection with other surrounding basins [test]
4) Determine volume of Project aquifers and that of surrounding basins, especially, should testing (electro-resistivity) show interconnection
5) Additionally, neighboring San Bernardino communities should receive allotment of water from this project, transferable credits on dry-years based on withdrawal of water by MWD

Cordially,



Ramon Mendoza

C: Molly Brady/BLM Area Manager, Needles

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8308 Ninth Street
Cucamonga, CA 91730

December 9, 1999

P3

MWD
Box 54153
Los Angeles, CA 90054-0153

Attn: Dirk W. Reed, Project Manager
Cadiz Groundwater Storage and Dry-Year Supply Program

Dear Mr. Reed:

Approximately one week ago I was astonished to receive a notice that certified mail from the MWD was being held for me at the Rancho Cucamonga post office. This meant that I had to drive several miles to the post office and then wait in line for service for 10-15 minutes.

I was even more astonished when I opened the envelope (that cost $3.20 to mail) and discovered that all it contained was a two-page form letter regarding the availability of a draft EIR/EIS for your groundwater storage program. P3-1

I recently arranged for a group tour of the new MWD reservoir just south of Hemet and was greatly impressed. Unfortunately, that good impression lasted only till I received that certified piece of junk mail. Is it required by law that you send out those notices by certified mail or is that simply MWD's latest method of wasting the hard-earned dollars of homeowners (including retirees on fixed incomes) who have to pay your high fees for water? How many millions of dollars did that mailing cost the customers of MWD? When will your next increase in water rates go into effect? If the Draft, and the letter regarding it, were simply not prepared in a timely manner so the letters could be sent regular bulk-rate mail, what is the reason?

I would appreciate receiving a copy of MWD's latest financial statement. P3-2

Sincerely,

Mrs. Mark C. Brubaker

Mrs. Mark C. Brubaker

Marjorie M. Mikels

(909) 981-20
Fax: (909) 981-09

Law Office
of
Marjorie M. Mikels
Attorney at Law
201 N. First Avenue
Upland, CA 91786-6061

P4

February 21, 2000

Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054-0153
Attn.: Mr. Dirk Reed

Bureau of Land Management
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507-0714
Attn.: Mr. James Williams

Re: Draft EIR/EIS
Cadiz Groundwater Storage and Dry-Year Supply Program, San Bernardino County, California

Dear Gentlemen:

Please Incorporate Prior Comments/Questions Inadequately Stated or Addressed in this EIS/EIR:

On March 21, 1999 and May 23, 1999, respectively, I sent you comments and questions during the scoping for the EIR/EIS concerning issues I hoped to see addressed in the report. My concerns were inadequately addressed in the report, my questions were unanswered and unfortunately you failed to include the comments and questions in this report. Your summary of my comments was so poor as to capture none of the issues I raised. I must assume you did an equally poor job of reflecting questions and concerns of others. So I hereby respectfully request that you mail to me a copy of the **Public Participation Report # 1161**. And I hereby incorporate by reference, and attach hereto both of my prior letters and the exhibits appended to the first letter, so that these will appear in the Final Environmental Impact Statement/Report in full.

P4

Further Reports of Obscene Monetary Contributions and Conflicts of Interest:

Next I incorporate by reference the attached print out of an article that appeared in the Sacramento Bee on Sunday, January 23, 2000, "Water: Davis Adviser taps a Capitol Aquifer", which reports on the estimated $133,000 given to Governor Gray Davis' 1998 campaign, and then shows how the latest water bond voter proposition, (Prop. 13) on the March 7th ballot, was changed to allow Brackpool and the Cadiz boys to receive $50 million of public bond moneys for the Cadiz project. (See page 109 of the voter information guide). Also attached hereto and incorporated herein by reference is an editorial that appeared in the same issue of the Bee, "Wielding Water Power: Should a Big Campaign Contributor be Inside Adviser?" P4-2

The water has always been murky around this project, but the stench is growing really bad.

DEMAND TO SEE THE CATERGORY II OR III PLAN AMENDMENT TO THE CALIFORNIA DESERT CONSERVATION AREA "DESERT PLAN" AND TO HAVE PUBLIC HEARINGS ON THOSE CHANGES *BEFORE* THIS SITE-SPECIFIC PLAN IS CONSIDERED.

I am a person who has attended meetings held at Cadiz, and submitted comments at every prior opportunity concerning this project, objecting several times to the fact that the project violates the California Desert Conservation Area Plan. In addition, I have brought suit in the recent past on behalf of plaintiffs against the Bureau of Land Management for failure to Amend the Plan before consideration of a site specific proposal to dispose of nuclear waste at Ward Valley, which would violate the Desert Plan and require an amendment. P4-3

Notwithstanding my demonstrated interest in these issues and this project, I have never received a copy of the Record of Decision for the Amendment of the CDCA. The EIR/EIS report recognizes throughout that the project is in violation of the Desert Plan, and that an amendment is needed. But the language of the amendments is not even included here. We are led to believe at ES 39 that the amendment will be prepared sometime in the future and that is why it is not in the EIR/EIS. (If that is the case, why is this project being considered before the plan amendment has been approved?).

But at Pages 5-18 and 5-19 there is great confusion on this issue. At P. 5-18 it says, "The BLM District Manager, Desert District *may initiate* an amendment to the CDCA Plan *at any time.*" But on P. 5-19 it says, "For the Cadiz Project, notice of the proposed CDCA Plan amendment and a request for comments *was published* in the Federal Register and a newspaper of general circulation in the affected area. Notices were also sent to those on the CDCA Plan mailing list. This was done in conjunction with noticing for the Cadiz Project EIS." **But I have never received a notice of the CDCA Plan amendment nor the opportunity to comment.** What is the status of the plan amendment? I hereby demand a copy of the notice and the proposed amendment and the right to give public comment on the amendment. I also hereby request the BLM to hold a public hearing on the plan amendment and to provide the people with thirty days prior written notice thereof.

REQUESTS FOR DISCLOSURE:

Please disclose information to the public concerning the following:

1. The present status of the agreement which exists between Metropolitan Water District and Cadiz for compensation. I.e., if the Met gets $50 million from the state bond issue, how much of that goes to the private company, Cadiz, for storing the water they take from "indigenous" sources? What other state funds may be allocated to the project? Will there be incremental payments received by Cadiz? How much money does Cadiz receive for each gallon or acre-foot of water they pump out of their basin, after taking Colorado River and "indigenous source" water and putting it into their own storage facilities? What is the total in gross receipts expected by Cadiz over the life of the project?
2. Who provided the information to First Union Securities (formerly Everen Securities) about Cadiz as a potential investment, as reflected in their December 1, 1998 report?
3. The draft EIR/EIS acknowledges that a massive amount of groundwater will be mined and the aquifer will be left with a basin deficit of over forty years worth of natural recharge. Why was this not more carefully analyzed in the draft document, and isn't this a CEQA defect?
4. When the salt water from Bristol and Cadiz Lakes flow to fill the cone of depression beneath the extraction wells, won't the pristine aquifer become

5. meaningfully degraded forever? Isn't this against the law? Is this sensible groundwater management? P4-7

6. How can BLM even consider allowing storage of all of this water in a place which is a seismically active region only 13 miles from the recent Hector Mine Earthquake registering 7.1 in magnitude? Especially in an area which used to be a mine, bomb, and live ordinance field for the military, where accidental explosions are still a possibility? How much did Brackpool and Dutton and The Cadiz Boys actually pay for this brackish explosive place where MWD wants to put the water they pull out of the WARD/FENNER Valleys where it is stored just fine right now? P4-8 P4-9 P4-10

7. Why does the draft report not present the Catellus map that demonstrates Piute, Ward, and Fenner Valleys are <u>all one connected aquifer</u> under ground? Why does the report use deceit and misrepresentation in saying Ward Valley is "geologically separate from Cadiz", but <u>failing to say</u> that Ward Valley is **not** geologically separate from Fenner Aquifer where Cadiz is sinking their wells to suck up all the water to transport it over to Cadiz's basin? (If I put a straw in my side of the glass and suck up the water in the glass, won't I also eventually suck up the water from your side of the glass?) P4-11

8. Why are the preparers of this report so blind as to be unable to see the Environmental Justice issues involved? Cadiz takes the water out of the interconnected Ward, Fenner, Piute Aquifers, which water feeds the Colorado River through five connecting underground pathways. The people of Needles (poor, Hispanic, Native American) and the people of Mexico, and the five River Tribes, all rely on the Colorado River for life, agriculture and economic viability. The Colorado River is drying up as its sources are extracted. There are therefore Environmental Justice issues involved in this project. The draft report says there are no environmental justice issues because the "water supply from both projects would be equitably distributed by Metropolitan consistent with Board policy." In other words, we are so equitable we'll sell it to <u>anyone</u> in our service area. But nothing is said about the fact that they are stealing water from one part of the state where Native Americans, minorities and poor reside, and where Metropolitan has <u>no governing jurisdiction</u>, in order to deliver it to somewhere far away for use by their own customers. And with the water, life's blood, is tranported the economic prosperity which life-giving water brings. P4-12

9. What is the justification for Met/Cadiz' taking of "indigenous" water (translated, means water underlying public lands that belongs to the people)? The draft report goes into great lengths to demonstrate Metropolitan Water District *needs the water* to meet growth projections in the coastal regions, and this is the cheapest source they can find. The water is just sitting here. "We need it." We have explored lots of other alternatives and this is our best idea, so we want to take it. But no justification whatsoever is given for allowing Cadiz to pump water for selling it outside the region, with no beneficial use whatsoever to the residents, the natural habitat, of the overlying land from which they are extracting this resource. What is the justification? And is it not true that you intend to use this water to permit further development in areas like 29 Palms? p4-

10. Economic Benefits: The draft report, in recounting the economic benefits of this project, failed to state the most important benefit of all. If Cadiz gets to profit from every gallon of water they pump out of the Fenner/Ward/Piute aquifer and put into their own storage basin, they will make millions of dollars off the people's water. Then they will have millions of dollars with which to ***pay off politicians***. It is sad that Metropolitan Water District is a quasi-governmental agency that cannot help government leaders in the form of campaign contributions. But as Ted Dutton has shown on the local level, and Keith Brackpool demonstrates at the state level, such constraints won't inhibit Cadiz Land Company, a private corporation. Need to influence the District Attorney to prosecute your enemies such as Rail Cycle? No problem! Even D.A.s have to run for office and Dennis Stout is very ambitious and has benefited greatly from Dutton's largess. Stout can launch a great prosecution and keep it going with allegations and innuendoes and tie them up in court for years. Then the friendly judge can dismiss a few counts here and there so the District Attorney never has to produce any credible evidence at trial. In the end, the D.A. just might settle with you, (pay me some bucks in civil settlement and I will not only dismiss the charges against you, but I will hide my entire file, and all the information obtained in our criminal investigation of you). Our district attorney has employed this tactic repeatedly, and indeed has assisted Cadiz in this manner by prosecuting Waste Management for its alleged dirty tricks used against Cadiz. Nothing has stuck yet, though, has it? p4-

Speaking of dirty tricks. I found the notes of the telephone call from an agent of Cadiz, made to me in my home, recorded without my knowledge or consent, p4

and from which portions were extracted and used by Cadiz in several different advertisements aired on KFRG radio during the Cadiz campaign about Measures L and M. Let's see if District Attorney Dennis Stout will prosecute Cadiz on my behalf, shall we?

On 1/25/96, a man identifying himself as Ralph "Ralphie" Amonitagy, called me at home, asked for me by name. He said he was calling for Waste Management, and that he worked for a firm in Arizona called "Whittset". He was conducting a survey of people's opinions on Rail Cycle. He said he was a "waste specialist". He said Rail Cycle would produce jobs—they would hire young boys to sit out there and shoot rats with bb guns. He said the project would be very clean because they would drop disinfectant from helicopters. Don't worry about water pollution, Ralphie said. Just drink bottled water. As for irrigation of vegetables and fruit, Kids don't like vegetables anyway—just give them a vitamin supplement. He said if anyone dies from the pollution—no problem. Rail Cycle will give the families enough money to move to San Diego, get a nice condo, have a yacht, and soon the families will forget. As for closure of the dump, someday they'll just put a soccer field on top, and no one will remember that anyone ever thought dumps were bad. p4-15

The next week Cadiz aired my conversation with this "Ralphie" on the air, without my consent. I was not identified, but people who knew my voice recognized me. That is the same Cadiz Land Company who now wants to take San Bernardino County's indigenous water.

Finally, Cadiz has persuaded government officials in San Bernardino County to approve Cadiz' extraction of water for agricultural purposes. They went to great extremes to try to act like they are farmers, and were intending to grow organic fruit in the desert. Now, as we see their present plans unfolding, it appears perhaps all they ever intended was to **mine the water and move on.** p4-16

I recommend Cadiz be allowed to keep farming their 9,600 acres of land, as part of the no-project alternative.

Sincerely,

Marjorie M. Mikels

MARJORIE MUSSER MIKELS

Enclosures

'909) 981-2030 Fax (909) 981

Marjorie Musser Mikels
Attorney at Law
201 N. First Avenue
Upland, CA 91786-6061

March 21, 1999

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
Box 54153
Los Angeles, CA 90054-0153

Re: Joint EIR/EIS for the Cadiz Groundwater Storage
And Dry-Year Supply Program ("Project")

Public Input as to Scope and Content of Information to Be Included
In the Joint EIR/EIS

Attn.: Debra Man, Chief, Planning and Resources Division

Dear Ms. Man and MWD:

I hereby submit the following issues and questions to be addressed in the EIR/EIS your company is preparing. These questions are asked on behalf of myself and other taxpayers and citizens of San Bernardino County. My concerns fall under the following topics, elaborated upon below: P4-1

1. Under what jurisdiction and authority is Metropolitan Water District ("Met") acting as "lead agency" concerning this project located in San Bernardino County, involving federal land outside the Met's service area, entailing Met's taking water beyond the scope of the 1932 Congressional grant? P4-

2. How does the Met justify the gross conflicts of interest of it and its attorneys, BEST, BEST & KRIEGER, in extracting indigenous ground water from an area outside their service area to transfer for use by and sale to their own P4-1

customers, all without the consent of those entitled to beneficial use of the water? P4-19

What is the connection between this proposed project and the recent land deal between the Wildlands Conservancy, Catellus Development Corp., and the U.S. Bureau of Land Management? Is any land in that exchange involved in this plan to take indigenous water from eastern San Bernardino County and bank it at Cadiz for later use in the Met's service area? P4-20

What is Met's connection with the sleazy San Bernardino County/State politics surrounding this grab of "indigenous" ground water? P4-21

Is the Met behind the "Quad State" Conspiracy to Kill the Desert Tortoise, which under the leadership of a renegade former BLM director of the desert district, is using taxpayer money to attack existing federal and state laws designed to protect endangered species and their habitats? P4-22

Will those corporations who polluted the urban groundwater basins in the Inland Empire be the beneficiaries of Cadiz/Met's transfer of groundwater from the desert aquifer to the Cadiz Water Bank? P4-23

Is the groundwater being extracted in contemplation of, and in preparation for thereafter allowing Edison to fill the Ward Valley basin with nuclear waste and chopped-up reactors? If not, why not "store" the water right where it is, instead of removing it to Cadiz's salty underground basin? P4-24

INTRODUCTION

Metropolitan Water District announced its intention to prepare the IR/EIS on a project to transfer "Colorado River" water to Cadiz, for nderground storage, allegedly to supply water in dry years. Only incidentally do ney mention their intent to "transfer indigenous groundwater" using the same acilities. And no where in their scoping announcement does the Met ever nention the words: **WARD VALLEY.** Instead Met talks about Fenner and adiz, without acknowledging the water in the Fenner aquifer is connected nderground to the Ward Valley aquifer located near the Met's P4-25

Iron Mountain pumping station. (See maps attached hereto as Exhibits A). The scoping papers fraudulently fail to disclose Met and Cadiz's plan to **convert** water from underground storage basins near the Colorado River, and treat that water as if it were their own, merely by transferring the water to Cadiz's private land for "storage". By this little scheme, Cadiz can make money as the "water bank", and Met can steal the water to which it is not entitled, for sale to its own customers. P4.

There are tremendous environmental threats created by this scheme, some discussed below, and some of which the Met says it will address in the EIR/EIS. But there are other threats to the citizens of San Bernardino County created by the fraud, conflict of interest, political payola, and backroom sleazy politics surrounding this project. Before Met wastes ratepayer funds on environmental impact reports, I invite review of these other issues and urge the Met to decide on a "No Project" alternative, in advance. P4

1. **Why is the Met the lead agency?** On June 18, 1932, the 72ndCongress granted MWD certain public and reserved lands of the United States in the counties of Los Angeles, Riverside, and San Bernardino to provide MWD access to lands to build their aqueduct, pumping plants, transmission lines, etc. The purpose of this grant was to **enable conveyance of water from the Colorado River** to Southern California. At no time did Congress say Met could drill wells and extract water at any location they chose along the aqueduct route, taking the water to their own or their friend's storage basins for their future use whenever they wished to supply it to their own customers. P4

The Met is not a special district serving the desert area where they plan to extract this water. Why are they allowed to serve as lead agency for a project whereby they intend to take someone else's water for their own use? San Bernardino County has jurisdiction over this unincorporated area? Why is not the county the lead agency? The federal government owns land on which the pipelines and conveyance facilities are to be constructed. Why is not the Bureau of Land Management the lead agency? The city of Needles has rights to the groundwater, which will be impacted by the project, and as the nearest municipality has superior legal rights to water in the still unadjudicated basin. Why is not Needles the lead agency?

There has been a floury of legislation recently introduced in the state senate, which appear to be attempts to give the Met legitimacy. Senator Johnson, for instance, wants to amend law to give Met "authority to exercise powers to carry out its objectives and purposes." And Sen. Hayden wants to make the Met a state agency by giving them requirements of "internal disclosure" of conflicts of interest and the like, so these requirements can be construed as "State Mandates". Then

he Met can be reimbursed for up to $1million a shot, supposedly for "compliance vith state mandates." Hayden also introduces fancy language about the Met using 'water conservation, groundwater storage, and replenishment measures, watershed nanagement", etc., for the "Los Angeles River, San Gabriel River, **and other Southern California rivers."** Is that supposed to expand Met's jurisdiction to nclude groundwater aquifers near the ColoradoRiver?

Sen. Kelly wants to give the Met all authority "reasonably implied to exercise the power necessary to carry out their objects and purposes". (Please see Senate Bills 520, 521, 60, 552, 553, 554 et al.) P4-27

If I want to steal from you, may I be appointed the agency to oversee the heft? Is that an exercise of authority necessary "to carry out my purposes?" That s what is transpiring here. The plan is clearly **OWENS VALLEY REVISITED!** Only this time, the water beneficiary gets the job of determining if there might be dverse environmental impacts resulting from its own theft of the water. Makes one wonder what the outcome will be, doesn't it?

2. Isn't there some conflict of interest here?

The inherent conflict of interest in the Met serving as lead agency is evident from he above discussion. But there are other gross conflicts of interest on the part of Met's agents which taint this project and create a foul stench. I refer, of course, to he Met's attorneys, **Best, Best & Krieger (BB&K).** The law provides that a principal is charged with liability for the conduct of its agent acting on its behalf.

BB&K, since at least 1992, has represented the City of Needles as its city ttorney. But BB&K also represents MWD, and in fact, is the firm which prosecuted the eminent domain proceedings to condemn the Domenigoni land for he new Eastside Reservoir in western Riverside County. (See Riverside Superior Court Case No. NC 010680). That is the place where Met will store water 'transferred" from the Colorado River region for use by Met's San Diego ustomers. BB&K also represents Perris and Hemet, where the new Eastside Reservoir is touted as promising new economic benefits of casinos, golf courses nd water sports. BB&K also represents San Bernardino County's Local Agency Formation Commission, which ruled adversely to Needles request to have Ward Valley placed in its sphere of influence. These representations of clients with dverse interests are significant. P4-28

In 1992, before Needles Councilman Charles Butler's death, he was nfluential in the City of Needles' expenditure of almost a half million dollars to do he hydrology and other studies in conjunction and preparation for a plan to put

wells at Ward Valley to obtain water for municipal use. Needles already derives their drinking water from wells at Klinefelter, only a couple miles away, and these wells tap the water in the Ward Valley and surrounding aquifers as are involved in Met's plan. Exhibit B hereto is evidence that the City of Needles had plans to develop 15-120 wells and obtain water and power, and that Needles had a consultant. Questions were raised about the impact on the desert tortoise habitat. Best, Best & Krieger were Needles' attorneys at that time. Exhibit C hereto shows the underground pathways to the Colorado River from the connected aquifers of Fenner and Ward Valleys. One of those pathways goes right through Klinefelter and on down through the Sacramento Wash through Needles. Thus, Met's plan to transfer indigenous water from these groundwater basins is a direct theft from Needles and the other river communities, and their plan to drill wells there is the same plan already studied and prepared by Needles, **with Best, Best & Krieger representing both adverse parties.**

Did BB&K disclose in writing to both clients their conflict of interest and obtained the informed written consent of both parties to this adverse representation? I do not think so. In fact, Best, Best & Krieger used its position as attorneys for the City of Needles, (and the tax dollars of that poor, isolated, small community) to fight and try to destroy politically and economically both Councilman Charles Butler and Councilwoman Ruth Lopez who were concerned about the Ward Valley and related water issues. P4-

This adverse representation makes this whole plan actionable and dispicable.

3. What's the connection with Catellus, Wildlands Conservancy and the BLM?

Shortly before Met announced it would be holding scoping meetings, news reports were released about a big land swap involving Catellus Development Corp., Wildlands Conservancy, (the principals of which were being kept secret from the public), and the Bureau of Land Management. The gist of the releases were that the tax payers (via Congressional action) were going to be footing the bill to the tune of $36 million to allow Wildlands to buy 437,000 acres of the 782,000 acres of "hard-to-develop desert and agriculture land" Catellus owns. In a separate part of the deal, Catellus is to receive from the BLM federal land, "closer to civilization and easier to develop". The land this anonymous "conservancy" is getting, paid for by public dollars, "will eventually be placed under federal protection", whatever that means. P4-

This is all significant because of the close relationship between MWD and Catellus, (they are building their offices together in downtown L.A., next to Union Station). It is also important because it is well known that Catellus (spun off from the Rail Roads who acquired from the government millions of acres of land so they could develop cross-country rail systems) owns land in checkerboard formations throughout the Ward, Fenner, and Cadiz valleys, i.e., the land in question.

It was Catellus who first stated, in their letter dated June 27, 1996, to the BLM project Coordinator for the Ward Valley nuclear dump,

"The Ward, Fenner and Piute valleys form the heart of the single richest freshwater storage region in the southern California desert. Publicly-available estimates of the existing water resources in the three basins alone indicate they contain a minimum of approximately 13,000,000 acre-feet (which, if all such storage were potable, is nearly twice California's total annual metropolitan and industrial water consumption). Overall, these studies suggest that total current groundwater reserves in the greater Ward Valley area are approximately 30,000,000 acre feet."

Catellus attached a map showing all the land they own in the region, a copy of which is attached hereto as Exhibit D. Realizing that water is being sold in San Diego today for at least $450 per acre-foot, and understanding that California law allows an owner of land over a basin to pump water for the reasonable and beneficial use on his property (but not to extract and give it to MWD to sell to San Diego), one can see the vast economic incentive to take this water. One can also hypothesize that Catellus is somehow involved.

P4-29

But the newspaper articles did not say who the Wildlands Conservancy is, did not say what land the BLM is giving to Catellus, did not say what land Wildlands is getting, did not say where further information could be obtained, did not say why Wildlands is getting federal money to help **them** buy land the government originally gave to the railroads. The news accounts appeared only two weeks before Metropolitan Water District announced this scoping. So it is easy to conjecture a connection between Catellus, who owns land in this project area, and is selling to Wildlands Conservancy, and this project. The public has a right to have these questions answered, which goes to the issue of public trust, and expenditure of public moneys.

In August, 1993, The Center for community Action and Environmental Justice published a white paper entitled, **The Give Away of Public Lands for Private profits/ The Scandal Within the Bureau of Land Management and the Nature Conservancy** wherein the authors laid out the schemes and specific examples of how Ed Hastey, (state director of the BLM, and also on the board of

directors of The Nature Conservancy), and using the exclusive services of Ralph Brown as a facilitator, transferred public land to private individuals through exchanges producing enormous profits for Brown, the Conservancy and Hastey's friends. One wonders if the heat generated by that report caused Hastey and the Nature Conservancy to change names, ergo, Wildlands. (The referenced report may be obtained for $6.00 payable to the center by contacting the above).

In any event, I would like questions answered as to the connections between this project and the above-referenced land deal, and also ask that the owners of all parcels in the project area be identified.

The project description says MWD is going to construct and operate a well field for extraction of groundwater, withdraw up to 150,000 acre-feet per year, over a period of fifty years and transfer, in addition, indigenous groundwater to the Colorado River Aqueduct for fifty years using the same facilities. We are told MWD plans to install 40 wells and that the "entire groundwater extraction well field would be constructed on land owned by the project proponents." But we are not told who those proponents are, or precisely where their land is located, and what law gives them the right to extract all the water out of these aquifers to give to MWD to haul off and store in Cadiz' basin, or at Eastside Reservoir via the Colorado River Aqueduct. Please answer these questions. P4-

4. **What is Met's part in the sleazy politics surrounding this project?**

I am a citizen and taxpayer of San Bernardino County where the project is located. I am also a life-long resident of said county and am married to, but separated from the person who is the current Chairman of the Board of Supervisors of said county. I have not conferred with Jon Mikels on the following.

I remember the first time that Ted Dutton gave us grapes from Cadiz, the agricultural project he was involved with. I said, "What is this, Jon? Dutton ain't no farmer." And indeed, I was correct. Dutton and the boys had done studies to find out where the water in the desert was located, then established a "farm" to give them, via the county's approval solicited with heavy campaign contributions, the right to pump the water "for agricultural use". They now plan to be the **water bank.** P4-3

From the beginning there has been something very sleazy about events in the Cadiz area. The county approved the Rail Cycle project, subject to approval by the voters of the "business tax", (which approval was not forthcoming), only a short distance from Cadiz's farm. This gave Cadiz a cause of action on which to sue the county, which they did, thus allowing Cadiz and the County Board of

Supervisors to negotiate in closed session, outside of view of the public, and without public comment, on Cadiz's plan to become the water bank.

Meanwhile, members of the public who attempted to speak out on these issues, like myself, have been incarcerated, prosecuted, beaten, in some cases brutally, and have had their reputations smeared and their economic livelihoods threatened.

The District Attorney has used the taxpayers' money to prosecute people for alleged connections with Waste Management, alleging Waste Management did illegal things to poor Cadiz. (When did the D.A. help the ordinary people go after people who have committed civil wrongs against them?) But Cadiz played a few games of their own.

I remember sitting at my desk at my office at home one night when a person called me, claiming to be from Rail Cycle and asked what I thought of the solid waste dump planned at Amboy. During the next weeks, Cadiz played two separate radio advertisements containing my voice and words from that conversation, all without my consent, having recorded our telephone call and using that recording for their commercial purposes. Either they lied when they represented themselves to be from Rail Cycle, or they tapped and recorded my telephone conversations. During that same period, on several occasions, while litigating against Best, Best & Krieger, they repeated back to me verbatim, words I had used in private telephone conversations with my clients. From this, I did believe my phones were tapped. But the district attorney, on behalf of Cadiz, is prosecuting Waste Management for alleged wire taps of Cadiz' phones. It was Cadiz who illegally recorded and published my calls.

P4-30

During this period I was aware of the close political connections between Ted Dutton and the governor. I attended two dinners with Pete Wilson at Bob Dutton's (Ted's son) house, and all the other times I ever saw the governor personally, Ted was there and at the governor's arm or close by. Then Wilson appointed him to the School Allocation Board, handling billions of dollars of school funds, when all Dutton was, that I ever knew, was a developer, (or actually a wheeler-dealer, who somehow got his hands into all kinds of lucretive land schemes). Dutton is supposed to be out of the Cadiz project now, but I do not believe it. Dutton was very good at greasing the political wheels. Perhaps there is nothing illegal in that—so long as there is no tit for tat, but I believe the real scheme is only now starting to unfold.

I often wondered why Supervisor Jerry Eaves' campaign contribution reports showed him giving ten, twenty and twenty-five thousand dollar

contributions to Rusty Areias, from Los Banos. A recent San Francisco Chronicle article provided some of the answers; other prior publications filled in the pieces.

Rusty, (one of the "gang of five" along with county Supervisor Jerry Eaves, when Eaves was in the state Assembly), is a dairy farmer from San Joaquin Valley, who turned into a "water farmer". He was selling water from the groundwater basin he shared with other farmers, water that would go to the Met. Other farmers found out, sued him. He went bankrupt, and lost his election. But never mind. The Chronicle article reports he gets paid $5000 a month by **Cadiz** and owns 20,000 shares of stock in Cadiz. The article said he is to receive 40,000 more shares if Cadiz wins approval from state regulators to take the water from "indigenous groundwater basins" and store it in Cadiz' water bank. Now the new governor has appointed him to head the state's Department of Parks and Recreation. So I guess he is still in great political standing.

Another member of the "gang of five" was Steve Peace from El Cajon. The last day of the 1998 legislative session, Senator Peace and Gov. Pete Wilson pushed through a bill charging the tax payers $235 million to pay for water storage along the water route from the Colorado River to San Diego. So I guess Cadiz' tremendous campaign contributions to governors, legislators, supervisors, and district attorneys is bearing fruit. Who cares about the old water law, which allows owners of land to use the water only for the reasonable and beneficial use of their property? Jim Costa and other legislator will get the law changed. But it might not even be necessary in order to effectuate this theft by Cadiz and the Met of the water in the desert's largest groundwater aquifer.

That is where the private negotiations in the back room with the county come in. That is also where Best, Best & Krieger's involvement becomes so crucial. What if the little town of Needles should just happen to go belly up? For instance, what if Needles can't pay off all those bonds that BB&K, their attorneys, (even acting as bond counsel) persuaded the city to issue (some in direct violation of the city charter requiring a vote of the people that never took place)? Or what if the City of Needles can't pay the county the "booking fees" which the County says Needles owes, but BB&K advised not to pay? Or what about the hundreds of thousands of dollars BB&K had the little town of 5000 people pay them to sue their own council person. Or what about all the money-making assets of the tiny town, like the hospital, the golf course, marina, the utilities that are being lost, while BB&K serves as the city's attorneys? If Needles goes bankrupt, it becomes **County Unincorporated Territory! Then, San Bernardino County can join Cadiz in becoming the WATER BANK.** The benefits of any water rights the city of Needles might have, as a consequence of using the basin for municipal water supply, would inure to the County. And who would be left to contest or

litigate the water grab, Owens Valley revisited? No one. Catellus would be on board. Hastey is always ready for a deal. Wildlands is probably ready to convey their right to the water under their newly acquired property to the Met. Win-win! Whoopee! As discussed below, even Edison, who is dying to dump their cut-up San Onofre, "Song One" reactor in the sand at Ward Valley, on their "utility corridor" wins, because all those environmentalists can no longer say migrating radionuclides will get into the aquifer and contaminate the water. **The water will be gone.** There is only one problem—what about the "desert tortoise"?

P4-30

5. Is the Met behind the QUAD STATE conspiracy to kill the desert tortoise?

San Bernardino County has formed a coalition with several other California counties (e.g., Kern, Riverside), as well as counties from the states of Arizona, Utah, and Nevada, to form a joint powers authority. The authority will issue bonds to generate income, to pay for lobbying to attack the laws which protect the desert tortoise and its habitat.

The coalition has hired Gerald Hillier, former Bureau of Land Management Desert District Director, under Ed Hastey, who is being paid $110 per hour, plus all of his expenses to go to Washington, Sacramento and any other place necessary to gut the endangered species act and laws protecting the tortoise.

P4-31

Why would San Bernardino County (which is paying 70% of the coalition's costs, based on the percent of desert tortoise habitat located in its jurisdiction) want to destroy protection of the desert tortoise? Exhibit B shows that even in 1992 it was recognized that "the area considered for drilling is in **prime desert tortoise habitat in a Wilderness Study Area."** Thus, if the Met wants to sink forty wells and rip off the water in Fenner and Ward Valleys they will have to get rid of the desert tortoise protections. Unlike Cadiz's valley, close to salt mines and brine, with a low water table, which residents in the area say is dropping significantly since Cadiz started farming, Ward Valley has springs and artesian wells. The water under Ward Valley gurgles out and rushes down in water falls and pools on its way to the Colorado River, 1000 feet in elevation below. When Met completes extraction of that precious life-giving substance in those aquifers, (and in the name of "storage for dry years", pumps the water over miles and miles of hot desert terrain, exposed to evaporation, and degradation in Cadiz' spreading basins and inferior storage aquifers,) then Ward and Fenner Valleys will no longer support life. Nor will those valleys support agriculture, economic production or beneficial use of any kind. And yes, the desert tortoise—and all other living creatures dependent on the springs--will die.

No wonder the County of San Bernardino has declared war on the desert tortoise. Big campaign contributions, and perhaps the rewards of becoming the "water bank" depend on getting rid of that despicable creature. Is the Met behind this? One might guess the tortoise has been discussed. Please address these issues in the EIR/EIS. P4

6. Do the urban polluters get to benefit from the water grab?

I respectfully ask the Met to address the following questions. How much of the water it plans to "store" from the Ward and Fenner Valleys, depriving the desert communities of future agricultural and economic development, will go to clean up the messes created by Lockheed Martin, Aerojet, Kaiser, and the United States military bases in the Inland Empire?

We know that Lockheed dumped perchlorate and trichloroethylene, that Aerojet did the same, as well as poisoning Chino Hills wells with arsenic, that Kaiser was dumping chromium, nickel, vanadium and barium, and the Air Force was putting plutonium in the sewer lines. All these poisons are pluming into the groundwater basins along the Santa Ana watersheds, ending up in places such as the Chino basin. How much of the water being taken from the desert communities is to be used to dilute the polluted urban groundwater to acceptable levels? And how much money are these polluting corporations being required to pay to clean up the messes they made while generating profits for years (many from weapons manufacturing)? And how much of that money will be paid to the communities who are losing their water (and future benefits to be derived therefrom), so that the Met can wheel it to the urban centers closer to the coast? P4

Are the big polluters going to be let off, free to cover over their toxic nightmares with new economic uses, such as Kaiser's transportation hub for trucks and trains carrying nuclear waste to the desert? These are policy questions that need to be addressed by our political leaders who are pushing legislation to enable and legitimize this water grab. There is a lot of rhetoric these days about water transfers, and conjunctive use, and water "development" being the answer to the shortages foreseen because of the burgeoning population. But the millions of acre-feet of water consumed by the polluters such as those few mentioned above, is rarely addressed. I would like to know precisely where the indigenous ground water Met plans to put in the "CRA" will go, and who will benefit? If it is necessary to take it to polluted urban groundwater basins, to inject for the purpose

of diluting poisons deposited there by industry, please indicate that. Such truths will further policy discussions which may help support future life on earth.

And if the additional water is needed to supply new development, then please address whether it is anticipated that the groundwater in the aquifers beneath Met's well fields will replenish itself. If not, how many years will it take for the coastal cities to use all the water being taken from these indigenous groundwater basins? If new development has sprung up in reliance on this water, how long will it be 'til the well runs dry? What happens then?

Finally, beyond this issue of identification of the beneficiaries of this project, please identify all those groups who are expected to lose, because of the proposed action by Cadiz and the Met. The maps attached hereto show clearly that the groundwater basins in question feed the Colorado River. Yet, for purposes of the Bureau of Reclamation's rulemaking on off-stream storage, they indicated to me that water in aquifers, even if connected to the river by underground pathways, is not considered water <u>from</u> the Colorado River for purposes of the allocations between the compact states. While that is all well and fine, if one extracts water from aquifers connected to and flowing into the river, one would reasonably expect there to be less water in the river. Specifically, one would anticipate less water in the lower Colorado River, which is already drying up, and less water for Mexico, which also has entitlements to Colorado River water. What steps are being taken to provide due process and rights of protest to the losers in this proposed action?

P4-32

7. **After Met extracts the water, then is Edison going to fill up the basin with nuclear waste?**

In January, 1999, the U.S. Dept. of Energy came to Needles and the Board of Supervisors and announced their "suggestion" to transporters of nuclear waste from the east coast to go across the Colorado River at the Topac Bridge and over Highway 40, right through Needles and Ward and Fenner Valleys, en route to the Nevada Test Site for storage. Las Vegas doesn't like the odds of thousands of shipments coming near their town.

P4-33

In February, 1999, the U.S. Nuclear Regulatory Commission and Edison held a hearing regarding their plan to start chopping up San Onofre's reactor number one ("Song One", they call it). It will be cut up in pieces and put on trucks and trains, shipped across the San Bernardino County en route to the Nevada Test Site and Barnwell, South Carolina, presumably over the same routes.

U.S. Ecology, licensed by the state's Dept. of "Health" Services to operate a nuclear dump at Ward Valley, has paid the $250,000 annual fees to renew their license for another year. That license allows them, as soon as the land at Ward Valley has been deeded by the federal government to the state, to begin burying millions of drums of radioactive waste right over the groundwater MWD tells us it is preparing to extract.

Please address in the EIR/EIS whether Met's plan means they have some kind of inside information indicating there will be no nuclear dump over the Mojave Desert's largest groundwater aquifer; or whether the plan is just to get the water out first? Is Met's project designed to eliminate cogent objections to the absurdity of dumping that waste at Ward Valley? Or is Ward Valley to be the excuse for Owens Valley revisited? Or is it both? Certainly there is a close alliance between the Metropolitan Water District and Edison—Water and Power seem to be close cousins. Please address these reasonable concerns for the citizens of San Bernardino County who have had to live with this nightmare for so many years now.

P

ENVIRONMENTAL JUSTICE

Finally, with the above issues in mind, I hope the Met will not discard the issues of Environmental Justice with such a curt dismissal as, "These policies do not create adverse effects on disadvantaged populations", as indicated in the last sentence of your Notice of Preparation.

I hereby specifically demand a thorough demographic analysis of the population of Needles. I believe you will find in this "remote desert community" large percentages of persons of ethnic minorities, including Native Americans, impoverished individuals, Catholics, lower educational achievers, low income workers, and approximately 33% children, as well as a high proportion of senior citizens on fixed incomes. These people cannot afford large campaign contributions to governors, legislators, or supervisors, like Keith Brackpool can. But they are Americans who deserve water as much as the rich coastal communities do. Met cannot arbitrarily declare their area's water to be "surplus", as justification for Met's removing it and taking it elsewhere to store, in order to claim ownership and sell it to Met's customers. That is "conversion".

P4

Conclusion

Please provide answers to all the questions raised herein, if and when Met prepares a draft EIR/EIS, and allow me the opportunity to further comment at that time. It is my hope that Met will reconsider the project in light of the above and save the

P

ratepayers money, by not proceeding with a project so fraught with legal and political pitfalls as is this one. Concentrate on your Imperial Irrigation District deal with people who seem to want to sell "conserved" water.

P4-35

Thank you for allowing me to comment.

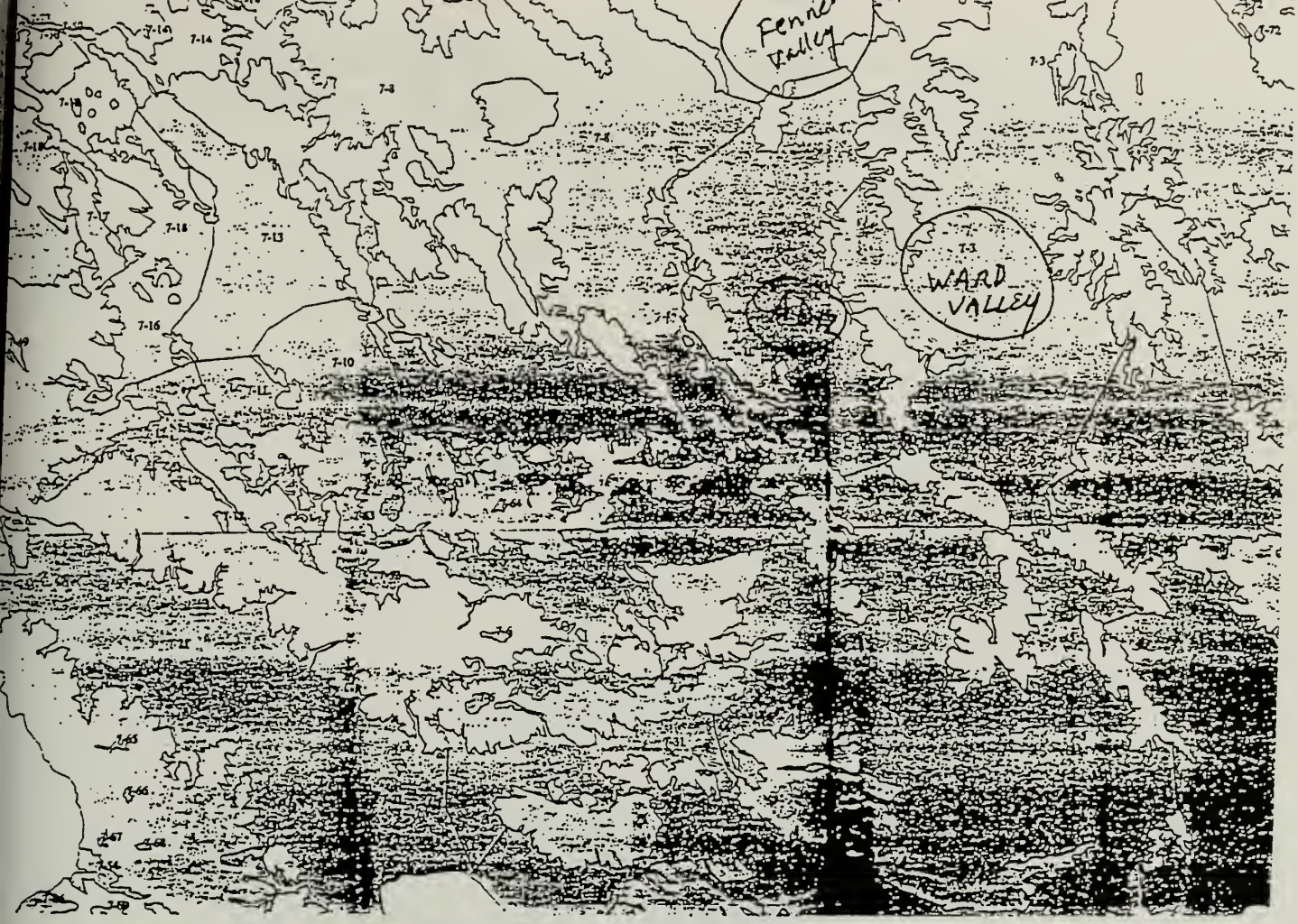
Very truly,

MARJORIE MUSSER MIKELS



JORIE M. MIKELS
ney at Law
N. First Avenue
nd, CA 91786

METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
Box 54153
Los Angeles, CA 90054-0153



REGION 7

From Water Quality Control Boards Colorado River Region

WATER BASINS

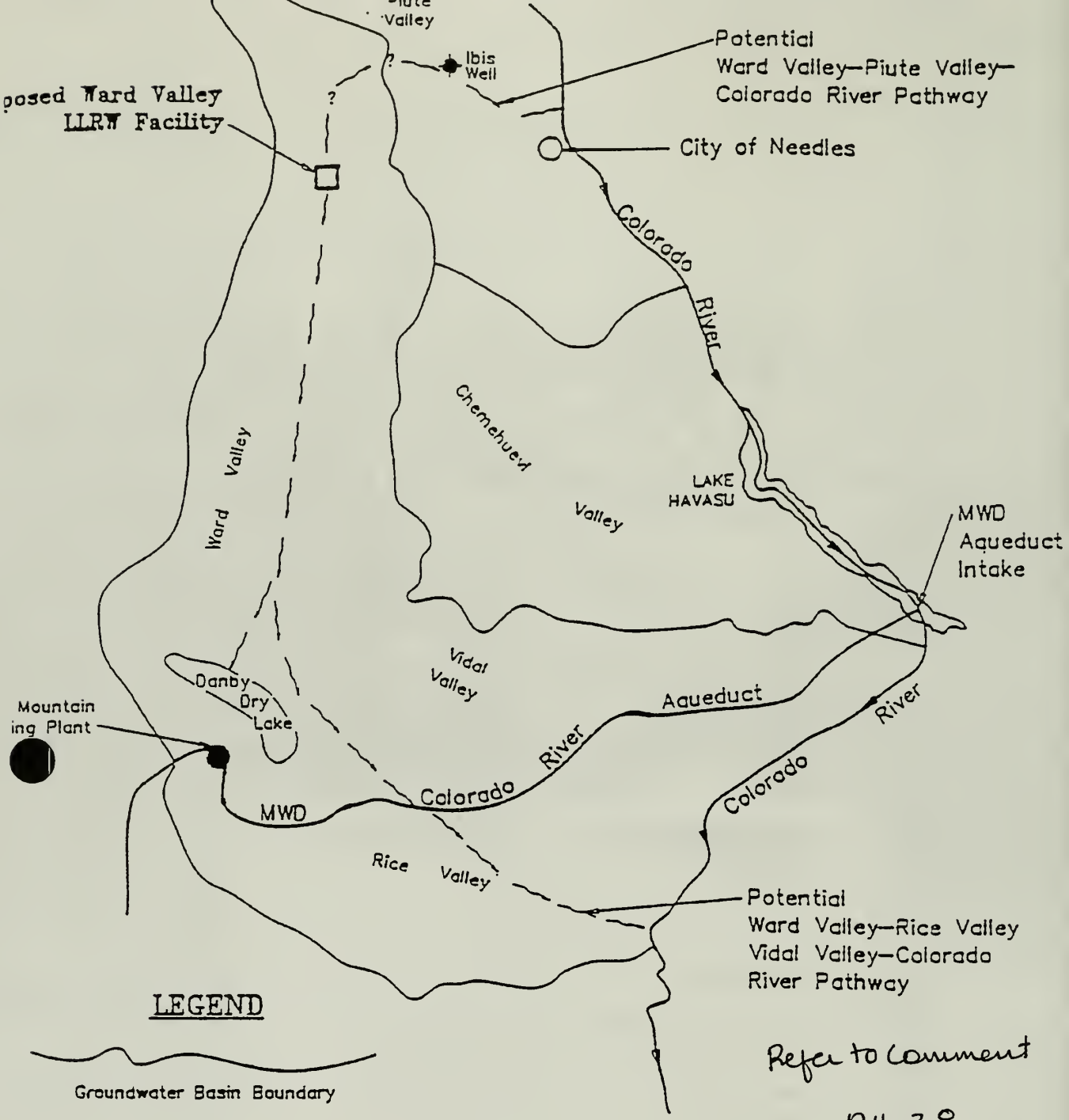
ANFAIR VALLEY
ENNER VALLEY ✓
VARD VALLEY ✓
ICE VALLEY
HUCKWALLA VALLEY
INTO VALLEY
ADIZ VALLEY ✓
RISTOL VALLEY
DALE VALLEY
WENTYNINE PALMS VALLEY
OPPER MOUNTAIN VALLEY
VARREN VALLEY
EADMAN VALLEY
AVIC VALLEY
ESSEMER VALLEY
MES VALLEY
EANS VALLEY

7-28 VALLECITO-CARRIZO VALLEY
7-29 COYOTE WELLS VALLEY
7-30 IMPERIAL VALLEY
7-31 OROCOPIA VALLEY
7-32 CHOCOLATE VALLEY
7-33 EAST SALTON SEA BASIN
7-34 AMOS VALLEY
7-35 OGILBY VALLEY
7-36 YUMA VALLEY
7-37 ARROYO SECO VALLEY
7-38 PALO VERDE VALLEY
7-39 PALO VERDE MESA
7-40 QUIEN SABE POINT VALLEY
7-41 CALZONA VALLEY
7-42 VIDAL VALLEY
7-43 CHEMHUEVI VALLEY
7-44 NEEDLES VALLEY

7-55 COLLINS VALLEY
7-56 YAQUI WELL AREA
7-57 PINYON WASH AREA
7-58 WHALE PEAK AREA
7-59 MASON VALLEY
7-60 JACUMBA VALLEY - EAST
7-61 DAVIES VALLEY
7-62 SAN GORGONIO MOUNTAIN AREA
7-63 MUSIC VALLEY
7-64 PINTO MOUNTAIN AREA
7-65 PALM CANYON
7-66 ASBESTOS MOUNTAIN AREA
7-67 NIGHTINGALE AREA
7-68 DEEP CANYON
7-69 HORSE CANYON
7-70 RATTLESNAKE MOUNTAIN AREA
7-71 MCCLAIN VALLEY
7-77 CHEMHUEVI MOUNTAINS AREA

Refer to Comment P4-25

Exhibit "A" (3)



Refer to Comment P4-28

OTE: Scale Applies only to Geohydrologic Features;
Source: Bedinger, et al., 1989 and The Mark Group, 1990

OSCIENCE Services Incorporated

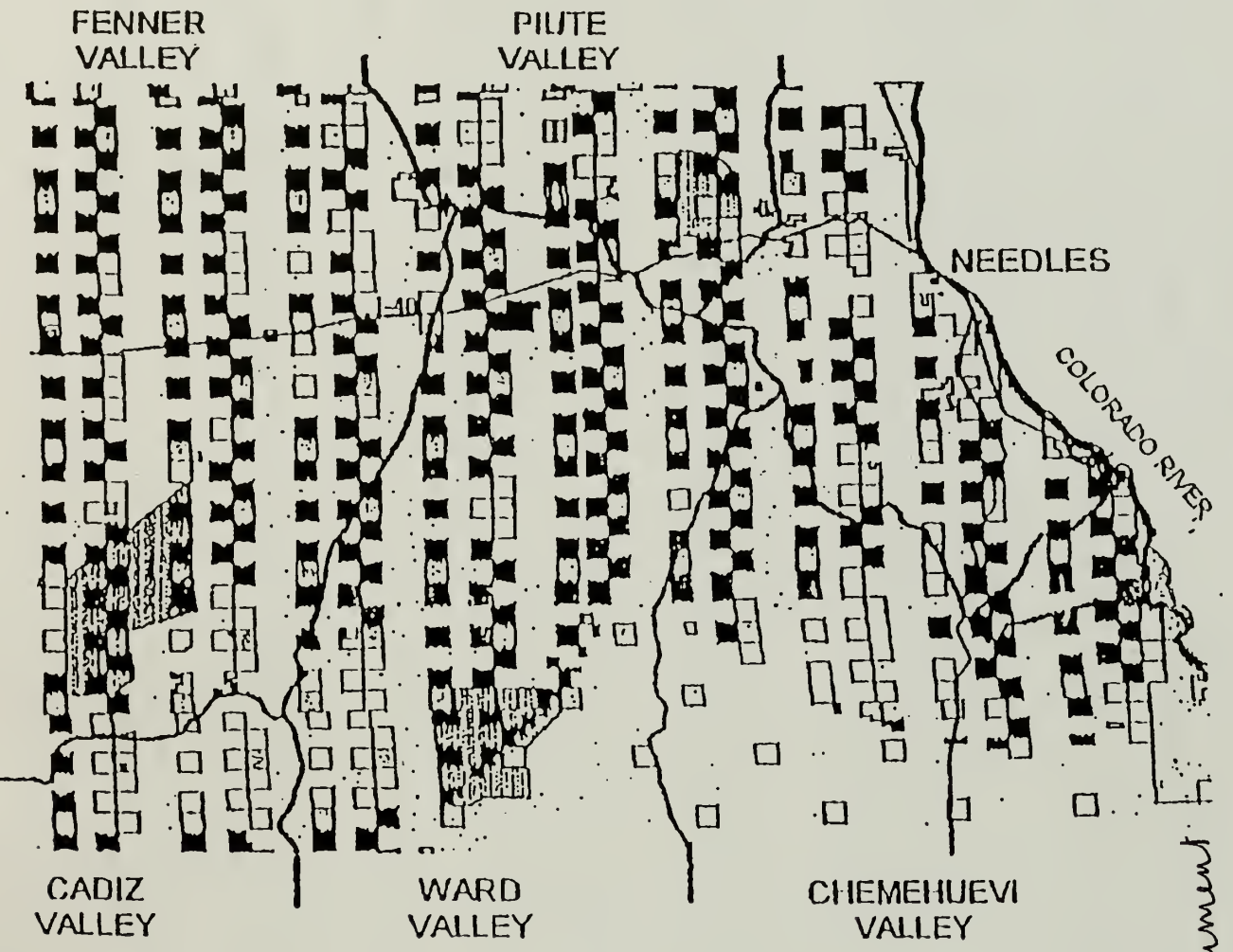
Drawn:	PLP
Checked:	
Approved:	
Date	5-AUG-94

POTENTIAL GROUNDWATER PATHWAYS

Exh. E

JN 1504

Ward Valley Area Property Ownership



-LEGEND-

- PROPOSED LLRW FACILITY
- CATELLUS OWNERSHIP
- INDIAN RESERVATIONS
- STATE LANDS COMMISSION
- PROPOSED AGRICULTURE DEVELOPMENT
- OTHER PRIVATELY-HELD LAND
- BLM
- WATERSHED BOUNDARIES

012345

Refer to comment P4-29

Exhibit "D"

RECEIVED
BUREAU OF LAND MNGMT.
99 MAY 24 AM 10: 17
CALIF. DESERT DISTRICT
RIVERSIDE, CA.

Marjorie Musser Mikels
Attorney at Law
201 N. First Avenue
Upland, CA 91786
(909) 981-2030

May 23, 1999

James Williams, Supervisory Realty Specialist
BUREAU OF LAND MANAGEMENT
California Desert District
6221 Box Springs Boulevard
Riverside, CA 92507

RE: Scope of Analysis of draft EIS/EIR for proposed Cadiz Water Storage and Dry-Year Supply Program Pipelines

Dear Mr. Williams:

I have previously submitted written comment to Metropolitan Water District concerning this project, a copy of which was forwarded to your office in March, 1999. Those comments are hereby incorporated by reference, and a copy is attached hereto for your convenience. P4-3

Before the Bureau of Land Management expends public funds for an EIS/EIR, I respectfully request that the issues discussed below be addressed. These issues take precedence over any discussion of the inescapable and devastating environmental consequences of the proposed project, and go to the issue of the legality of the "project" itself. P4-

The issues addressed herein are:

1. Inadequate Definition of Agency Roles and Source of Authority for MWD to serve as lead agency to conduct environmental studies on their attempted water grab of indigenous groundwater. P4-

2. Failure to Amend the California Desert Plan before consideration of a site specific project within the California Desert Conservation Area. P4-

3. The value of the public resources (water) being expropriated by the MWD and a private corporation, (Cadiz) and the economic benefits the public may P4-

expect, if any, in consideration for this gift of groundwater to be exported and appropriated by the project proponents. P4-39

4. The legal grounds by which the project proponents claim to have appropriation rights to this valuable public resource they plan to carry away via pipelines laid across public land. P4-40

5. Public Policy Issues including the Doctrine of Public Trust. P4-41

On behalf of myself and numerous other citizens of the County of San Bernardino, I respectfully request these issues to be addressed before any further public funds are utilized in studies of this project which I have reasonably dubbed, "Owens Valley Revisited". P4-42

1. PLEASE DEFINE RESPECTIVE AGENCY ROLES AND AUTHORITY FOR PROCEEDING IN ANY MANNER WITH THIS PROJECT. P4-43

I was surprised in March, 1999, to learn that Metropolitan Water District (MWD herein) and not the BLM was conducting the scoping for the EIS. MWD has, to my knowledge, no jurisdiction in the area of San Bernardino County from which it is attempting to appropriate water for its profit and sale to coastal region users. I was surprised that BLM had no representatives at either the scoping session held in March at Cadiz, nor at the meeting held that same evening in Needles, CA, the community whose ground water resources will be depleted by Cadiz and MWD's appropriation. Perhaps BLM perceives its only role to be to conduct the EIS/EIR regarding the pipeline to transport indigenous water to Cadiz, since that pipeline will traverse our public land. However, I understand MWD intends to pump and take water from the aquifers underlying public land in Fenner and Ward Valleys, which will reasonably be expected to severely impact present and future uses of public land and resources there. Much of that land overlying the groundwater to be appropriated is owned by the federal government, managed by the Bureau of Land Management, on behalf of the people. So why is not the BLM conducting the EIS/EIR regarding the taking of that water? Please explain the roles, legally and practically of the different agencies in this water grab. Is BLM merely driving the get-away car for the water heist, or is your agency participating in the appropriation of a public resource for private gain?

For sometime, there have been attempts in Sacramento to pass legislation which would, by some stretch of the imagination, grant MWD powers of the

State. MWD wants legal authority to grab water in one part of the state for their own use, merely by asserting their customers have a more beneficial use in mind for the water than the use to which it is currently being employed. Many bills have been introduced. One, a couple years ago, would have given the governor power to appoint a 15-member board, instead of the manner in which the board of directors is currently comprised, appointment by the various member water agencies comprising MWD with additional members based on land valuation within the respective districts. That proposal caused James T. Edwards, President of the Foothill Municipal Water District to write on May l, 1997,

"As proposed in SB 926 and AB 928, Metropolitan would effectively be transformed into another arm of state government, with a board composed of political appointees that could conceivably represent political interests that are not consistent with the Metropolitan member agencies' needs in securing a reliable water supply at the lowest possible cost for Southern California. . . . local control and governance of Metropolitan must be maintained."

Those bills were not enacted. This year, MWD and Hayden and Kelly have been trying more subtle means to make it appear MWD has "state-wide" authority. In addition to making the MWD comply with conflict of interest reporting requirements (which are standard for most public officials but did not seem to apply to this powerful agency) and passing legislation prohibiting MWD from using rate payer money to conduct intrusive investigations into the personal lives of "whistleblowers" in an attempt to destroy individual's reputations, Senate Bill 60 (Hayden) requires the district, "in cooperation with specified entities, to participate in considering programs of groundwater recharge and replenishment, watershed management, habitat restoration, and environmentally compatible community development utilizing the resource potential of the Los Angeles River, the San Gabriel River, **or other southern California rivers,** including the storm water runoff from these rivers."

I request the BLM to answer the public as to whether those five words in Senate Bill 60, ("or other southern California rivers") are the authority being relied on to allow MWD to be lead agency on their proposal to take the water in Fenner and Ward Valleys (hydraulically the same water in the connecting basins), and appropriate it for their own use and profit. If not, what is the law being relied on for such authority? Sen. Kelly had some bills this year that would require MWD to make economic interest reports, but then to dip in the tax payers' coffers for millions of dollars to reimburse MWD for the costs of "complying with the state mandate". Does that convert MWD into an arm of the state so they can go anywhere and claim any county's water as its own, just

because MWD has a good beneficial need for it? Are they allowed to be the lead agency all over the state now, to turn your rural area into a waste land because "we need your water more than you do"?

P4-43

2. ISN'T THE DESERT PLAN AMENDMENT NECESSARY BEFORE A SITE-SPECIFIC PLAN FOR CONVEYING OUR WATER TO CADIZ IS CONSIDERED?

BLM's notice (#CA 060-99-38) states: "The proposed project will include a draft plan amendment to the California Desert Conservation Area Plan to allow the 35-mile long pipeline or aqueduct to be placed outside an existing utility corridor".

P4-44

It is encouraging to know that BLM now remembers that the California Desert Plan exists. We have not forgotten the continuing struggle against the Ward Valley Nuclear Dump. The BLM facilitated the direct sale of land in Ward Valley to be used for radioactive waste storage and disposal, ignoring the fact that no use classification or element exists in the Desert Plan that would allow dumping of that lethal poison on our public lands. We recall the EIS for a nuclear dump was conducted under the guise of "indemnity selection" initially, later switched to "direct sale", all without the Category II Plan Amendment called for in the Congressionally-approved Desert Plan and without the public hearings necessitated by NEPA.

So now BLM seems to understand the necessity of a plan amendment. But should not that plan amendment, with concomitant public hearings, be conducted first before a site-specific plan is proposed for EIS/EIR? Doesn't the plan amendment require independent establishment of "site suitability criteria"? We, the public, have not even been given the text of the proposed plan amendment. Is it going to say: "New use of public land: pumping groundwater aquifers dry so water districts from remote regions of the state can 'appropriate' and convey the water to basins owned by private corporations for 'storage', thus reaping private profit from water owned by the people, under the rubric of 'dry-year storage'"? Is that the new plan amendment? If so, lets put that amendment out for public comment and see if the citizenry believes this to be a "beneficial and reasonable use" of their publicly-owned land and underlying water resources. If so, enact the plan amendment and then BLM can put the new "use" out for public proposals and bid. Perhaps some other landowner, other than Cadiz, has an empty groundwater storage basin they would like to fill with the people's water. Perhaps an alternative bidder might even be willing to pay the taxpayers for our water, instead of pretending that

holding the stolen resource is a "public service" for which they should be paid. Paying for the "get-away car" or pipeline that MWD intends to use to steal (excuse me, "appropriate") the water is hardly just compensation for taking the public's largest groundwater resource, is it?

P4-

3. WHAT IS THE VALUE OF THE PUBLIC RESOURCE THE PROJECT PROPONENTS INTEND TO EXPROPRIATE FOR THEIR PRIVATE GAIN?

While BLM is commenting on the above-referenced policy and planning issues, (i.e., why they aren't doing the plan amendment first), could someone please do an accounting analysis? If Catellus is correct, that 30 million acre feet of water lies in the groundwater aquifers under Ward and Fenner Valleys, and water is being sold today for $459 per acre foot in San Diego, is the water under that public land really worth $13,770,000,000—almost $14 billion dollars? And if that is incorrect, could you please tell the public how much our management company (i.e., the BLM charged with "managing our public lands") believes our "indigenous" water is worth? And if the BLM has not calculated the value of the water MWD and Cadiz intends to pump and pipe out of our public lands, why not? And Mr. Williams, would you agree that if you were the "realty specialist" for a private company and you were about to give away $14 billion of your employer's assets without consent of your employer that you might not only be fired but prosecuted for embezzlement or misappropriation of funds? Why do not the citizens of the United States deserve the same ethics and fiduciary responsibility that some corporate entity enjoys of its employees? Do we not deserve to vote, or at least have public comment on whether we wish to give away $14 billion, before we comment on the "environmental issues"? When do we get to talk about the *economic* issues?

P4-

I hereby register my lack of consent to the repeat of Owens Valley that is being considered here, and state that any expenditures of public funds for environmental studies of this ill-conceived plan is a waste of public funds for which the Bureau of Land Management, and its officials, should be held legally responsible.

I hereby respectfully request BLM's written response as to why a plan amendment is not being proposed **first** (with public hearings held on the plan amendment), **before** a site specific project is proposed and thousands of dollars of taxpayer money are wasted processing environmental studies for the benefit of Cadiz and MWD. Why is Cadiz receiving special treatment? Why should Metropolitan Water District be allowed to put their pipes across our land to

P4

take our water to Cadiz? Why are we doing a scoping on the project at all if such a project is not currently permitted by the California Desert Plan? If the water needs to be stored, what is wrong with the location in which it is now "stored"? Why should the water go to Cadiz's salty degraded basin? Why is the BLM even contemplating using public lands and public funds to aid and abet a private corporation in the theft of our public resources for private profit, all in contravention of state water law, and a congressionally approved land use plan? P4-46

4. UNDER WHAT LAW IS THIS "PROJECT" INVOLVING THE EXPROPRIATION OF PUBLIC WATER RESOURCES FOR PRIVATE GAIN BEING PROCESSED?

In your analysis of what law controls the issue of whether BLM, as manager of public lands in the Ward and Fenner Valleys, may allow MWD and Cadiz to appropriate water underlying those lands and export it for use in MWD's service coastal service areas, your attention is invited to the following:

1. **State Water Law applies.**
   The United States Supreme Court held in the New Melones Dam case, United States v. California, 438 U.S. 645 (1978) where the United States was seeking a permit to appropriate water for storage behind the dam from an intra-state river, the Stanislaus, that state water law controlled. Reliance on the case of Arizona v. California, which dealt with interstate water was misplaced. P4-47
2. **Even the Federal Government Acknowledges the Evils of Water Grabs and speculative water transfers.**
   It should be noted that even when the Bureau of Reclamation was established and given the right to sell irrigation water to farmers, the 57th Congress wanted to prevent "the possibility of speculative use of water rights" (H. Rep. No. 1468, 57th Cong., 1st Sess., 6-7 [1902]). Rep. Mondell of Wyoming, in charge of the bill on the House Floor said:
   "The settler or landowner who complies with all the conditions of the act secures a perpetual right to the use of a sufficient amount of water to irrigate his land, but this right. . . only extends to the use of the water on and for the tract originally irrigated. These most important provisions of the law prevent all the evils which come from recognizing a property right in water with power to sell and dispose of the same elsewhere and for other purposes than originally intended. It is much better to risk the individual hardships which will inevitably occur under a provision of appurtenance than to risk the evils certain to result from unlimited authority to transfer water rights." 35 Cong. Rec. 6679 (1902).

3. **State Law gives the landowner the right to pump the groundwater below his property for use on the land overlying the aquifer.** He shares that right with other owners of land over the aquifer. Katz v. Walkinshaw, 141 Cal. 116, 134 (1903).

Use of the water being tied to the land has been recognized and upheld in California law because land without water is often worthless, and normally groundwater, used on the overlying land, will percolate directly downward in response to gravity, replenishing the underlying groundwater supply.

California law gives precedence to overlying users in recognition that if one person can for his individual profit sell or transfer the water on which others rely, he can destroy the whole community and render the neighborhood or area uninhabitable. Owens Valley is an example.

As between the owners of land overlying strata of percolating waters, the rights of each to the water are limited, in correlation with those of others, to his "reasonable use" thereof when the water is insufficient to meet the needs of all. (Katz at 135-136). **The right is not dependent on continuous use and it cannot be extinguished for nonuse.** (Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist. (1935) 3 Cal.2d 489; Wright v. Goleta Water District (1985) 174 Cal. App.3d 74).

Appropriators are entitled only to surplus water in the basin, that is, that amount of the safe yield, and those rights are subordinate to cumulative needs of all overlying users, whose rights are paramount to appropriative rights. (City of Los Angeles v. City of San Fernando (1975) 14 Cal. 3d 199, and City of Pasadena v City of Alhambra (1949) 33 Cal.2d 908.)

People like Brian Gray of Hastings Law School (who helped draft water transfer proposed law) and Sen. Jim Costa have been trying for several years to change water law to facilitate ease in groundwater transfers, no doubt for the profits of corporations like Western Water and Cadiz. But so far, those laws have not been enacted. And the court in the case of Baldwin v. Tehama County, (1994) 31 Cal. App 4th 166 affirmed that counties, (and citizens by voter initiative) have the right to protect their future economic interests in their groundwater by limiting groundwater exports. Communities do not have to become wastelands just because some neighboring big city claims they can make a more "beneficial use" of a rural area's groundwater.

Given all the above, and before BLM gets to the issue of whether MWD's pumping will significantly affect the environment in the Ward and Fenner Valleys, the public has a right to know:

1. Who are the overlying landowners of the aquifer from which the water will be pumped to put into the pipeline that will traverse public land en route to Cadiz? Wildlands Conservancy executive director, David Myers, told me on April 1, 1999, that Wildlands is buying all of Catellus' land holdings in Ward Valley, but not Fenner Valley. P4-48

   Wildlands says it will "eventually" transfer the land it is buying to the United States Government, since Congress is being requested to fork over $36 million of federal funds to aid the purchase by this non-profit corporation of land owned by Catellus. Wildlands is contributing $18.6 million to the acquisition of 438,000 acres. Will Wildlands, before conveying the land over to the public, first sell off the groundwater rights to Cadiz or MWD? Is Catellus selling its water rights in Fenner to MWD or Cadiz? Has there been any determination that any proposed sales are of **"surplus"** water? Is the federal government selling its overlying landowner rights to Cadiz or MWD? Or is the BLM just sitting by while the public's water rights go unprotected, allowing these rights to be appropriated without compensation or even objection? Does Cadiz own land in Fenner? Are they currently pumping any water there for beneficial use on the overlying land? Have they ever filed a "Notice of Extraction and Diversion of Water" with the State Water Resources Control Board ? What use rights have actually been established in these valleys? By whom? For what use? How is the determination of "surplus" being quantified?
2. Have there been any determinations as to whether these basins actually will recharge themselves? Or is this water being taken after determination that the water in those basins is a one-time non-renewable resource and that Cadiz and MWD have more of a right than anyone else, including the public, to exploit this resource? If so, who made this determination, when, how, and why? P4-49
3. What is the City of Needles' interest in the water under the Ward/Fenner Valleys, as a municipality whose wells are recharged from that aquifer? P4-50
4. Who are the transferors? P4-51
5. Do the transferors have a transferable quantifiable right to transfer any water? How did they acquire that right? From whom and when? P4-52

6. Will the transfer operate to the injury of a vested water right holder or the environment?
7. Since the water is being transferred out of the basin, what legal restrictions apply?
8. How is transferring water out of these aquifers going to impact the Lower Colorado River which is already drying up?

P4-

P4-

P4-

These issues are very important because we the people, the public, are the owners of the overlying land in these basins and as such have priority rights to the groundwater underlying our land. Who and when and why and how did we lose those rights so that now MWD and Cadiz come in to take our water and we get to comment only on the environmental impacts of the pipeline?

P4

It should be noted this "project" bears no similarity to the Imperial Irrigation District transfer of their "conserved" water to San Diego. In that case, Imperial farmers receive water from the Colorado River through their contracts with the Bureau of Reclamation, and have well-established rights and use patterns. They intend to sell their "surplus" or "conserved" water to San Diego and convey it over MWD's aqueduct. They promise none of the water they "farm" will be from leaving fields fallow—they are just going to save, so they can sell water they receive for $13.50 per acre foot, to San Diego where it goes for $450.00 per acre foot. They have a contract, long negotiated. We may have questions about why these people should reap such tremendous profits off of tax-subsidized water, but at least the terms are out in the open and people all over the state can review and comment.

P4

In this project, we have a huge outside water district going beyond its district boundaries to an aquifer under public land where they have established no historical use rights and made no prior beneficial use of the water for farming the overlying land. The district intends to install wells, pump the water, and take it far away for their own customer's use. This does not look like Conjunctive Use, or Rights of an appropriator. It looks like theft or conversion. What is the BLM's and the MWD's theory of its rights and ownership?

If MWD claims to own this water by prescription, (five years of open, notorious, hostile adverse use against the rights of the legal owner), then they need to be reminded, that one cannot acquire property and water rights by prescription on public lands. People v. Shirokow (1980) 26 Cal. 3d 301.

The little announcement sent out by the BLM fails to address any of the above issues, or provide any information about what the proposed project actually is. We aren't told who owns the water, who is getting the water, on what grounds, legally or equitably, they claim rights to this valuable resources. We are given no economic analysis or description of the public interest as opposed to the private interests involved. The announcement is woefully inadequate to even commence a scoping of environmental issues—first we need to know what is the project—and thus far the public has not been adequately informed.

P4-57

5. THE PROPOSED PROJECT FLIES IN THE FACE OF SOUND ETHICAL PUBLIC POLICY.

P4-58

The BLM holds the land and water in the project area in **PUBLIC TRUST** for not only the citizens and natural creatures living today in reliance on that land and water, but for future generations. BLM is charged with responsibility to manage this land and water for purposes of sustainability and maximum safe yield. We all saw what the last great water grab at Owens Valley did—death, destruction and continuing environmental and health degradation for years to come.

Before we give away the water at Fenner and Ward Valleys we need to consider the following policy issue. We taxpayers in the County of San Bernardino have been severely and inordinately impacted by the United States' war machine. Weapons contractors, Lockheed, Kaiser, and Aerojet, (along with the huge military bases in our county) have dumped poisons in our groundwater, many of which cannot be removed. Plutonium in the sewers at Norton AFB, Perchlorate and trichloroethylene, at the Lockheed Mentone plume, and depleted uranium, perchlorate, nerve gas and arsenic in the Aerojet site in the Chino Hills can be "treated" only by dilution of the groundwater with clean supplies of water until "acceptable levels" of the polluting substances are obtained.

Our small water districts, and our ratepayers are being charged exorbitantly high prices for water, purchased by our water companies from the MWD to inject into our groundwater wells. Now, MWD intends to take for free the water out of our county's largest groundwater aquifer, to sell back to us so we can dilute the wells polluted by weapons manufacturers. These corporations who polluted our wells are some of the largest in the world, with budgets larger that that of most countries.

I suggest that the United States and its weapons manufacturers be required to reimburse the people of the county of San Bernardino the cost of every gallon, and every acre foot of water that our local water districts must purchase to inject into our wells to restore our groundwater to "safe" levels for drinking, bathing, and irrigation of our food crops. I suggest that MWD pay the $14 billion dollars to the county of San Bernardino for the water they intend to take from our indigenous groundwater supplies. They can get reimbursed by Lockheed Martin, Aerojet, Kaiser, GE, GD and all the other military contractors who have polluted our urban valley. After all, Congress voted to give the military another $15 billion of taxpayer money to make weapons of mass destruction only last week. I speculate that Lockheed has the money.

What is being proposed instead is that San Bernardino County residents not only have our urban groundwater basins polluted, but that MWD be permitted to take our desert water for free, then sell it back to our local water districts at enormously high prices, so they can be driven out of business. Water districts all over our region are folding. MWD has been blasting through our mountains to lay their pipes, has been sucking up every bit of water from our region to fill its new Eastside Reservoir in Hemet, all the time holding us hostage with their high prices.

Now, on March 30, 1999, MWD announced its new **Manager,** Ronald R. Gastelum, attorney and official for BKK, the toxic waste company that poisoned the water in West Covina. Such a wonderful new partnership is being forged: the preeminent polluters of the Los Angeles Basin with MWD, the water giant, serving as lead agency to determine the environmental impact of MWD itself stealing the public's water.

What about you, Mr. Williams? Do you think Mr. Gastelum will care about the desert tortoise, when MWD decides if it should be allowed to take $14 Billion of water from that protected species' habitat? I respectfully request that the Bureau of Land Management go no further with this proposed "project" until the public has answers to all the above questions.

Sincerely,

Marjorie M. Mikels

MARJORIE MUSSER MIKELS

Refer to comment P4-2

TATE WATER POLICY
Vater: Davis adviser taps a Capitol aquifer
acramento Bee - Sunday, Jan 23, 2000
ommentary By Tom Philp, Bee associate editor

o most Californians, the water bond on the March ballot is an unfamiliar collection f projects. But to Keith Brackpool, chief executive officer of Cadiz Inc., it contains a ey that could unlock a treasure. Buried in the fine print of the water bond is a rovision, inserted behind the scenes in the Legislature's final hours last September, hat makes a Brackpool project eligible for a public subsidy. The project would tap vater beneath the Mojave Desert and sell it to Southern California communities.

Brackpool's ambiguous behind-the-scenes role in water policy Ð attending key rivate meetings with officials and with legislators struggling to write the vater bond Ð raises familar political and ethical questions, ones that go ack as far as the days when the railroads dominated the state Capitol.

Why has a major campaign contributor Ð Brackpool gave an estimated $133,000 o then-candidate Gray Davis' 1998 campaign Ð become by all appearances Gov. Davis' top water adviser? When is it appropriate for a governor to skirt his

1/24/00

own paid staff and call on a corporate executive to help formulate public policy on issues in which his company has a direct stake?

Refer to comment P4-2

Brackpool is a newcomer to the inner circle of California's water politics. When Pete Wilson was governor, "we did not have any business on policy issues with him that I can recall," said former Resources Secretary Doug Wheeler.

But under Davis, Brackpool frequently attends the most important private water discussions of state and federal officials. Key legislators, quick to sense his clout, recruited Brackpool to help with last-minute negotiations to place a water bond on the March ballot.

"Brackpool is in there formulating policy on a regular basis. Undisguised," said Tom Graff, a senior attorney with the Environmental Defense Fund who has been an insider in California water politics for 28 years. "It is not that he is hiding it or the governor's hiding it."

Far from it. "Those two just really clicked," said Davis spokesman Michael Bustamante. "There is no question about the fact that the governor looks to Keith Brackpool as a key adviser to him on water."

And how does Brackpool perceive his role in water policy? Davis "uses outside people extensively," Brackpool said in an interview at his corporate headquarters, from which he can look down from the 16th story at Santa Monica Beach. "When I'm sitting in [the governor's office], the focus is to give [Davis] some of my advice," says Brackpool. "I'm one of several people that, on water issues, he will sit and listen to."

But no other water adviser has experienced such a combination of private access to power and recent public success with his business:

In its first incarnation, that water bond had nothing in it for the Mojave water project. Somewhere during those last-minute, behind-the-scenes negotiations, language was inserted into the bond that would qualify Cadiz' partner, the Metropolitan Water District, to receive a subsidy of up to $50 million for their joint Mojave project. Brackpool denies he played any role in crafting that language during those private negotiations .

Davis invited Brackpool to join him on an overseas trip last autumn to meet with President Hosni Mubarak of Egypt, where Brackpool's company will manage the construction of a massive canal network to convert 100,000 acres of desert into farmland with water imported from the Nile River. A few weeks after the visit, Brackpool's company formally announced that Saudi Prince (Amir) al Waleed Bin Talal Bin Abdul-Aziz Ð whose wealth in 1998 was second only to Bill Gates, according to Forbes Magazine Ð had committed $300 million to the project. "It was a project we were involved in," before that meeting with Mubarak, said Brackpool. "There was nothing that occurred that aided the project."

Brackpool plainly acknowledges the different roles he plays: an adviser, a liaison, a company executive. "We're a public company," he says. "Every single asset we have is publicly disclosed and fully disclosed. Everybody knows the projects we're involved in." When with Davis, "when I'm sitting in that room, the focus of that room is to give him some of my advice, which is entirely up to him to take or not."

Refer to comment p4-2

His advice contrasts with the frequently strident positions of farmers, environmentalists and cities that, left to their own devices, have created years of political gridlock.

"The tradition in this industry has been everybody fights from their own corner, nobody offers compromise, everybody ... boringly recites their own position conference after conference, meeting after meeting," Brackpool says. In water, "everybody could learn a lot by learning about the art of compromise."

The message has apparently so captivated Davis that the governor uses Brackpool much as he does a top political appointee. Yet his precise role inside government, and the precise limits of his political power, are impossible to pin down.

Several regular participants in water policy discussions, including U.S. Interior Secretary Bruce Babbitt, declined to discuss Brackpool's role in the Davis administration. This reluctance is a measure both of Brackpool's perceived power and their worry about the consequences of publicly commenting on Davis' governing style. What's publicly known, though, gives important glimpses into how water politics is played these days in clubby Sacramento, where the line between California's private sector and public policy is getting blurrier by the day.

Under the Mojave may lie a key piece to Southern California's looming water puzzle. For years, 16 million people have filled their sinks with Colorado River water that doesn't belong to them. It belongs to other Western states. Now those states, dealing with their own growing pains, want their share of the Colorado back. Southern California must learn to live within its means. This inevitably will mean storing extra Colorado River water that is available only in wet years and diverting it toward suburbia in dry years. But how? And where? Perhaps the desert?

"The best thing about being in this business is that this is a problem we have to solve," said the British-born, 42-year-old Brackpool. His firm gets its name from the a dry lake in the Mojave Desert, roughly half-way between Barstow and the Colorado River. In 1983, the small company began to buy desert there. Not just any desert, this was the land above an isolated and largely unused aquifer storing perhaps as much water as 20 Folsom Lakes. Cadiz began as a farming operation, converting at first a few hundred acres into farm fields. As late as 1995, it had only $543,000 in sales, not

exactly the financial profile of a big player in California politics.

How times changed, and quickly. In 1996, with capital from the stock market, Cadiz swallowed a troubled company many times its size, Sun World International, and its 19,000-some acres of farmland around the San Joaquin Valley. "Cadiz has no financial ability to pull off a transaction of this size," an attorney for Sun World shareholders predicted at the time. He was wrong.

Refer to comment R4-2

Within just a few years, Brackpool had lined up the once-struggling Sun World as the manager of an Egyptian water project operating on a scale greater than California's massive aqueduct system. Meanwhile in Sacramento, he and his companies began spending just about as much money on political contributions as they had generated back in 1995 in total sales.

Cadiz hired as a lobbyist former Democratic legislator Rusty Areias (now Davis' chief of state parks). Brackpool got to know state Sen. Jim Costa, chairman of the Senate Water and Agriculture Committee; a picture of the two is on display in Brackpool's office. Last year, Brackpool recruited another influential Democrat, former Merced Congressman Tony Coelho, chairman of Al Gore's presidential campaign, as a company director ($25,000 a year, plus an intial 25,000 shares in stock options).

As Brackpool began familiarizing himself with the Democratic candidates for governor and met Davis, "I was genuinely not only impressed, but surprisingly impressed," he said. On water policy, "you can get into a very real, very deep debate extremely quickly."

The 1998 election was a unique window of opportunity for the company. Not only was California to have a new governor, but Cadiz was about to have a shot at realizing its long-term dream of converting its Mojave holdings into a massive underground reservoir.

Brackpool, says Wheeler, "made this decision, I think, that he would support a candidate whose views were comparable to his, picked the right candidate, and that investment, quote unquote, has borne fruit for him."

Political fruit, perhaps. The financial fruit has yet to ripen, but may soon.

The Cadiz Groundwater Storage and Dry-Year Supply Program needs a customer. The likely one is the primary purveyor of water for Southern California, the Metropolitan Water District. On Aug. 14, 1998, Cadiz signed "principles of agreement" with Metropolitan outlining a deal to connect Cadiz Valley with the Met's system.

The two would share the cost of building an estimated $150 million worth of canals, pumps and pipes to move water back and forth between Cadiz' landholdings and the aqueduct connecting the Colorado to Los Angeles.

Remember that Cadiz' share of the construction costs is roughly $75 million. Here are the potential revenues of this deal for Cadiz:

Metropolitan, according to the principles of agreement, would pay Cadiz approximately $115 million to convey Metropolitan's water diverted from the Colorado and store it under the Mojave.

Refer to comment p4-2

Metropolitan would also pay about $230 per acre foot (enough water for two Southern California families for a year) in today's dollars for native desert water extracted by Cadiz from the Mojave over a 50-year period. Cadiz says Metropolitan would get 1.5 million acre feet "at a minimum." At $230 an acre foot, that translates into $345 million in today's dollars. A draft environmental document suggests 2 million acre-feet of water for sale. That translates into $460 million.

Given such revenues and Metropolitan's huge customer base Ð the district has annual revenues of nearly $1 billion Ð one wouldn't think it would be hard for them to finance the Mojave project. But that didn't keep somebody from looking for taxpayer help. The California Legislature last summer was putting together the largest water bond in state history. Its two primary architects, Assemblyman Mike Machado (D-Linden) and Sen. Jim Costa (D-Fresno), were struggling to find the right projects and language to win the votes of two-thirds of the Legislature.

Enter Brackpool.

"One of the things I had been asked to do by Senator Costa and Assemblyman Machado was to sit down with the governor and talk to him to see what he wanted to see in the bond," Brackpool said. As for the specific details in the bond, "I didn't play any role in any of the language at all."

But somebody did. And that somebody was looking after Cadiz.

Last Sept. 9, when Costa and Machado unveiled their water bond bill Ð AB 1584 Ð it proposed $200 million in subsidies for new ground-water projects in California. But the projects had to meet certain conditions. For Cadiz, one condition was a killer Ð Section 79181(b)(2).

Ground-water projects, it specified, must "limit the extraction of the ground water to not more than the water that is stored or recharged by the project participants," read 79181 (b) (2). In ground-water basins like the Central Valley, which have many users, this condition is essential. Such over-drafted basins need bona fide water banks, in which deposits and withdrawals are balanced. No deposit, no return.

"It sounds to me that Cadiz would not qualify [for bond subsidy] under the first provision," said Kevin O'Brien, a Sacramento attorney who specializes in water law.

But when the lawmakers, after meeting in private with Brackpool and other negotiators, unveiled their retooled water bond for a final vote, Section 79181 had a new subsection. Suddenly a whole new batch of ground-water projects were worthy of subsidies: Those that comply "with all laws and contract terms governing the extraction, appropriation and use of ground water by the project participants."

Refer to comment P4-2

In layman's language, that means a water project can suck more water from the ground than it puts in, so long as all the neighbors agree that's OK. And that's particularly OK with Cadiz. In the Mojave, Cadiz basically has no neighbors.

"The interesting thing about the Cadiz project is that they essentially are the landowner," said O'Brien.

"That is a unique situation," said Machado. "Theoretically he could extract that to zero under current conditions. Keith stands as the only person to be impacted if he no longer has water."

This Cadiz-friendly provision in the water bond had little or no public debate. Textbooks describe law-making as a public process, requiring an open vetting of proposals in hearings, with proponents and opponents clearly identified. But in the final hours of a legislative session, when lawmakers are scrambling to finish the public's business, most of the action takes place in private.

"It does have a little bit of an aroma to it," says Jim Knox, executive director of Common Cause of California. "I think a lot of people felt that there were specific provisions in the water bond included for Keith Brackpool that were not accorded to other individuals with personal financial interests."

Davis' spokesman Bustamante says that any raised eyebrows about Brackpool are simply unfair.

"There's a cynicism in politics about how money provides influence," he said, predicting that Davis and Brackpool would have bonded regardless of the campaign support. Any focus on the contributions is "totally discounting the fact that this guy is one of the foremost experts on water policy in the world." Beyond being "damn smart on the issue of water," Brackpool, says Bustamente, "is just a nice guy."

Niceties aside, why should all state taxpayers underwrite the Mojave project with Cadiz through water bonds, instead of having Metropolitan's ratepayers finance it through their monthly water bills?

"We have made decisions collectively in this state that the water system is common to the people of California in terms of the benefits derived by a

strong water system. That is how we've gone about funding things," said Brackpool. The alternative is for every region in the state to "exist solely on its own rate base."

That said, Brackpool acknowledges the policy problems of offering subsidies for water projects. "There are very few water districts that have ever seen a bad project if the money was being given to them," he said. "You ought to give priority by bringing in either private matching funds, local matching funds or federal matching funds."

Ref to comment p4-2

In short, Brackpool is saying, the taxpayers should be paying to support projects like his public-private venture in the Mojave. "From a business perspective," he said, "it is an exciting area to be in long-term. There is a problem. It needs to be solved. I think a lot of money is going to be thrown at it to get it solved."

STATE WATER POLICY
Editorial: Wielding water power:
Should a big campaign contributor be inside adviser?
Sacramento Bee - Sunday, Jan 23, 2000

Last Dec. 15, eight of the most powerful figures involved in shaping California water policy met privately in Sacramento. The group included Interior Secretary Bruce Babbitt and three of his top lieutenants. Chief of Staff Lynn Schenk and two top state officials represented the governor. The eighth person was a major campaign contributor of Gov. Gray Davis, water entrepreneur Keith Brackpool.

As detailed in a Forum story today by The Bee's Tom Philp, Brackpool is an intriguing player in California's gridlocked world of water politics. His firm is on the cutting edge of many water projects, seeking to do everything from storing water under the Mojave Desert to converting Egyptian desert into farmland with a massive new aqueduct system tapping the Nile River. Brackpool's message of pragmatism and compromise often seems a welcome departure from the typical battles amid the dysfunctional family of traditional water warriors. It's understandable that Davis would seek his advice.

What is not understandable -- or acceptable -- is for Davis to use a campaign contributor interchangeably with his official administration. Everyone involved in that Dec. 15 meeting was required by law not to influence public policy decisions that could impact their private investments -- everybody, that is, except Brackpool. Anybody receiving a public paycheck is covered by conflict-of-interest laws, but when the flow of money goes the other way -- from consultant to governor -- conflict-of-interest laws don't apply.

Brackpool's penetration of Sacramento's halls of power raises any number of

questions. Would Davis have been drawn to Brackpool had he not contributed more than $100,000 to the governor's campaign? Can an executive with private, corporate interests set aside those interests to provide balanced advice on public policy? If Brackpool is acting as a consultant on water issues, shouldn't he be paid -- even if only nominally -- so that the protections of conflict-of-interest laws and regulations would apply?

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p4-2

Legislators' behavior can be just as clubby and worrisome as that in the executive branch. Brackpool says he was invited to private meetings with key lawmakers last summer as they tried to negotiate the final details of a $2 billion water bond now before voters as Proposition 13 on the March ballot. During those private sessions, the bond somehow came to include a potential $50 million subsidy that could fund Los Angeles' Metropolitan Water District in partnering with a Brackpool firm. Legislators should conduct such lawmaking in public, not in private meetings attended by invitation only.

Water decisions are as central to California's future as they are inherently controversial. Failing to conduct such crucial public business in public -- or failing to maintain arms-length relationships among the players -- simply invites trouble. The basic point is simple, indeed: Campaign contributors who aren't required to obey conflict of interest laws shouldn't be transacting the public's business. #

TTENTION: JAMES WILLIAMS EA/EES
UREAU OF LAND MANAGEMENT
LIFORNIA DESERT DIVISION
221 BOX SPRINGS ROAD
IVERSIDE, CALIFORNIA
92507-0714

2/22/00

P5

MR. WILLIAMS:

DUE TO CIRCUMSTANCES BEYOND ANY ANTICIPATION, I HAVE JUST BECOME AWARE OF ENOUGH ABOUT THE CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM TO UNDERSTAND I NEED TO KNOW FULLY THE ECONOMIC & ENVIRONMENTAL IMPACTS OF THIS PROJECT BEFORE I CAN RENDER ANY OPINION,

P5-1

BECAUSE OF THE INTERESTING ARRANGEMENT BETWEEN T ED. OF CADIZ, INC, MR. KEITH BRACKPOOL AND GOVERNOR GRAY DAVI AND UNDETERMINABLE IMPLICATIONS AS THE WATER BOND PROPOSITION 13 HAS NOT YET BEEN VOTED ON, IN ORDER TO PRE-EMPT ANY APPEARANCE OF IMPROPRIETY, IT IS ONLY APPROPRIATE TO OPEN PUBLIC COMMENTS TO A DATE BEYOND THE ELECTION SO AS TO FULLY UNDERSTAND THE ISSUES AND THEIR LEGAL STATUS AND MAKE A SPECIFICALLY INFORMED PRESENTATION, AND 60 DAYS SEEMS REAS

THE NUMEROUS HIGHLY COMPLEX ISSUES ON THE BALLOT, ESPEC THE MULTI-LAYERED & FACETED PROP 13, MAKE IT IMPOSSIBLE TO COMMENT WITH MERIT AND SUBSTANCE PRIOR TO THE ELECT. SINCE THAT ELECTION IS LITTLE OVER TWO WEEKS AWAY, IT SEEMS ONLY REASONABLE TO EXTEND THE PUBLIC'S OPPORTUNITY TO HAVE INPUT ON THIS ISSUE IN WHICH BOND FUNDING IS SUCH AN EXPENSIVE WAY TO GO, AND THE PUBLIC THEREIN HAS A HUGE FINANCIAL INTEREST IN THIS MATTER OF PUB POLICY AND PRECIDENT,

PLEASE EXTEND THE COMMENT PERIOD, AND SEND THE PROJECT EIR/EIS, ANY, AND ALL RELATED DOCUMENTS TO THE FOLLOWING ADDRESS WHERE SAN BERNARDINO COUNTY OFFICIAL KIDNAPPERS ARE CURRENTLY HOLDING ME CAPTIVE AGAINST MY WILL AS A POLITICAL PRISONER UNDER THE COLOR OF AUTHOR AND LAW, THROUGH US MAIL ONLY AS THE CAPTORS REFUSE A OTHER FORM OF DELIVERY:

P5-2

JEFF WRIGHT CCO130145B
WVDC JAILS
9500 N. ETIWANDA AVE.
RANCHO CUCAMONGA, CA 91739.

THANK YOU,

Jeff Wright

February 25, 2000

Metropolitan Water District of Southern
California, Post Office Box 54153, Los Angeles, CA
90054-0153, Attn. Jack Safely.

P6

To whom it may concern,

I would like to submit these comments on the CADIZ VALLEY GROUNDWATER STORAGE EIS. Me and my wife own 400 acres of land in the area and demand the "No Action Alternitive" for the following reasons. A we are left with are unanswered questions.

The Metropolitan Water District of Southern California wants too much native or "fossil" groundwater lying under the Fenner, Cadiz, and Bristol Valleys in the Mojave Desert south of the Mojave National Preserve and north of Joshua Tree National Park.

Presented as an underground storage and retrieval plan, taking water in wet years from the Colorado River, percolating it underground, and retrieving it for use only in dry years, it sounds good at first. But the somewhat confusing details, as put forward in the EIR last November,
show a different story.

Of up to 1,000,000 acre-feet of stored water how much can be retrieved for use in subsequent dry years? We don't know, its not indicated in the EIR. Obviously significantly less
than the amount put in as evaporation in the percolation ponds and underground flow to the Bristol and Cadiz Dry Lakes. The Met staff say they will get back to us with that
data later.

Where is the Colorado River water going to come from for the remaining 35 years of this project after 2015 when disbursement falls under the control of the Secretary of the Interior? There is no data on this issue at all in the EIR, just an assumption that water will be available when needed. Perhaps that is why all EIR-presented scenarios show a large groundwater deficit and a very little storage in the later half of the project.

Why does the EIR show up to 2,000,000 acre-feet of native groundwater being extracted when this is far above the project-supplied estimate of any available sustainable groundwater level? Because they clearly do not intend to keep the extraction at a sustainable level. They expect a 22 inch subsidence in the valley floor and a 190 foot groundwater drop from the current levels.

How did the project come up with their figure of 30,000 acre-feet per year as a sustainable annual groundwater removal amount when more recent estimates show a much less figure? This water is "fossil" water, that is, it was put there by rains and snows at the end of the ice age 10,000
years ago. If it is taken out it is gone forever, the land subsides, and the water table drops. Springs dry up, vegetation changes, and another non-renewable natural resource is squandered for short-term gain. Why is there no data on the effect of a 190 foot groundwater drop on springs in nearby BLM wilderness areas? The Met staff say they don't think it will affect the springs so no study was done.

Why is there no comprehensive groundwater monitoring plan with agency oversight which includes both the agricultural usage and the project usage so a sustainable regime can be
maintained? The Met staff says they are working on some sort of plan but its not finished yet so its not in the EIR and we can't evaluate it.

P6

Why is the BLM taking a backseat on this project? Why are they not insisting on complete, well thought-out plans for this project? What we have got here is sloppy work. It is inconsistent, incomplete and as it stands unworkable except as a blank check for a total grab of the native groundwater in Cadiz Valley. P6-8

Why is the manager of Cadiz Land Company the "unofficial" water policy advisor to Governor Gray Davis, and does that have anything to do with a multi-million dollar public subsidy for this project to be voted on in the March election? Does that have anything to do with the "rush-to-approval" attitude that the BLM seems to have for this proposal? P6-9

In the BLM's press release there is NOTHING mentioned about drawing out native groundwater in connection with this project. The summary page of the EIR says up to 2,000,000 acre-feet of native groundwater could be taken over and above the 1,000,000 acre-feet of "stored" water put in. Furthermore, since an unspecified percentage of the "stored" water will actually run off into two dry lakes, this project truly is more about groundwater removal than it is about storage and retrieval. P6-10

The USGS (United States Geological Survey) has prepared a report criticizing the groundwater removal figures. It is now in draft form and will not be available to comment upon as things stand now. San Bernardino County planning staff has reviewed the EIR and has prepared a report critical of the groundwater removal figures. We are hoping that it will become available after it has been presented to their Board of Supervisors in late February. P6-11

The EIR states that the purpose of the project is to meet dry year needs for the growing six-county Southland in 2020. There is time to look at ALL the facts. There is no need for a quick cover-up. We want a supplemental EIR which will provide a full disclosure of the groundwater pumping element and its impacts on the surrounding public lands. P6-12

The project proponents, Metropolitan Water District (MWD) and Cadiz, Inc., propose to construct a 35-mile long, six-foot diameter underground pipeline to transport water from the Colorado River to Cadiz property in the Cadiz and Fenner Valleys. The water would be stored underground and withdrawn by MWD as needed to meet current and future water needs of Southern California. This will impact wilderness values and sensitive wildlie species like the desert tortoise and Mojave fringe-toed lizard. P6-13

If approved, the BLM would issue a right-of-way permit for construction of the pipeline and necessary pumping facilities on BLM-managed public lands. The proposed project also would require a plan amendment to the California Desert Conservation Area Plan to allow the pipeline to be constructed outside an existing utility corridor. P6-14

P6-15

The comment period needs to be extended.

Thank you,

Kevin Emmerich/Laura Cunningham
P.O. Box 51
Death Valley, CA 92328

Christine Carraher and Jerry Smith
P.O. Box 935, Twentynine Palms, CA 92277
(760) 361-0505 (760) 367-6931
carrsmith@earthlink.net

February 29, 2000

P7

Metropolitan Water District
Water Resource Management Group
P.O. Box 54153
Los Angeles, CA 90054-0153
Attn: Mr. Dirk Reed
Mr. Jack Safely

RE: DRAFT ENVIRONMENTAL IMPACT REPORT/STATEMENT
CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM

Dear Sirs:

Thank you for the opportunity to comment on the Draft Environmental Impact Report/Environmental Impact Statement ("DEIR/S") for the Cadiz Groundwater Storage and Dry-Year Supply Program ("Project").

Due to a lack of critical information in the areas noted below, I am requesting that a Supplement to the DEIR/S be issued, with subsequent appropriate public comment period, before a Final EIR/S is issued. As the DEIR/S currently stands, it does not provide an adequate basis for making a reasonable assessment of potential environmental effects of the Project. It also does not adequately address issues raised in the scoping process.

I request that in the Supplement the following issues be addressed and, as well, I request that you also incorporate by reference the issues raised by Christine Carraher's letter of March 16, 1999 to Debra Mann of Metropolitan Water District of Southern California ("MWD") in response to the Project scoping process and not fully addressed in the DEIR/S.

First, we do not understand how the Metropolitan Water District qualifies as the lead agency on its own project, with the responsibility of certifying the adequacy of its own EIR/S. Please explain this in detail, with references to the applicable sections of CEQA.

Second, in the sections Assessment of Project Need and Purpose, Cumulative Impacts, and Short Term Versus Long Term Productivity Impacts, the DEIR/S does not consider meaningful conservation measures for within MWD districts, nor potential impacts on non-

Cadiz desert areas outside of the MWD member areas. The Project proposes to remove indigenous desert ground water for a period of at least 50 years. The DEIR/S dismisses the loss of the use of this resource to desert districts by stating that the Cadiz area is remote, with little development, infrastructure, etc. In the desert areas water is so scarce that all sources are important - even if they are 50 or 100 miles away. The Cadiz water resource is potentially usable to many desert communities. Therefore, the EIR/S needs to assess the impacts of the loss of the use of this resource for a 50-year period on all the area desert communities (for instance, Ludlow, Barstow, Needles, the Morongo Basin, Amboy, etc.), including but not limited to socioeconomic impacts. P7-6

Additionally, as this is desert water that is being removed, the proponents should demonstrate that they are meeting the conservation and use-restriction standards of the strictest of these desert communities and water districts - including limitation on issuing of water meters. The DEIR/S submits that water restriction measures do not affect growth, but if the number of new water meters issued annually in MWD member areas was as severely restricted as it is in some desert communities, growth would most certainly be limited - and the Need equation would change. P7-7

Third, the Groundwater Monitoring and Management Plan ("WR-1") is the single most important reason for issuing a Supplement. The public must have more details of this measure before being able to assess the potential environmental impacts of the Project. The extreme vagueness of this vital measure as it stands now has left a disturbing amount of "wiggle room", as we detail more below. P7-8

We have been told elsewhere that this Measure and its critical components will be administered and overseen by a committee to be made up of essentially just MWD and Cadiz Inc. - the proponents of the Project (`Proponents'). Because of the "wiggle room", it is crucial to build in to WR-1 a mechanism for full public oversight and participation. Water is a resource for the people of this state and this nation. It cannot be the sole province of merchants. It is vital to human - and environmental - survival. P7-9

Therefore, we propose that if there is to be a committee to administer WR-1, it include the following:

1. a member of a local (S.B. county desert area) environmental or specifically desert environmental organization;

2. a member of a regional or national environmental organization with more expertise on broad water issues;
3. a civic representative of the desert communities, to be chosen by lot; and
4. a representative of a desert water district, non-MWD.

We propose that these persons have full membership rights in this committee or, if that is prohibited by state law, that they have membership priveleges with full access to meetings and information involving the committee, but without voting rights.

We also propose that there be specific mechanisms for general public access and comment to the administration of WR-1, including access to all data generated.

Regarding specific water issues, in the DEIR/S there is no analysis of the possible effects of potential future contaminants in Colorado River quality, including toxics and radioactivity, even though with the river's long course through several states such contamination may reasonably be expected to occur over the life of the project. Such analysis is needed. Also, WR-1 includes no provisions for monitoring and remediation of Colorado River water quality before it is placed in the groundwater, at a time when pollution of the groundwater would be easy to prevent, as opposed to the unproven fantasy of clean-up of the groundwater basin after it is has been polluted.

There is also not adequate analysis in the DEIR/S on the effects to surface conditions of increases and decreases in groundwater elevation, and WR-1 is vague and lacking in specifics regarding monitoring and remedial actions of subsidence effects outside the Project wellfield area.

Perhaps most importantly, WR-1 is also vague and lacking in specifics as to how extraction and recharge are to be measured. In terms of quantity, it says only that wells will be monitored at least annually and if it is determined that this is causing adverse effects, etc., etc. However, it gives no specifics or numbers on total amount of extraction. Trigger thresholds are not specified but are left up to the judgement of the Proponents ("wiggle-room"). Clearly, measuring recharge rates to the groundwater basin is the crux of the matter. The DEIR/S does not demonstrate conclusively what those rates are, nor are we told how they will be measured. How can it be shown there will be no overdraft, if those rates are not reliably known? Trigger thresholds are not specified.

And finally, we need, again, specifics: What will be the levels and conditions remaining at the end of the project? P7-16

Thank you for your consideration of these comments. P7-17

Sincerely,

Christine Carraher

Jerry Smith

cc: Bureau of Land Management
California Desert District
6221 Box Springs Blvd.
Riverside, CA 92507-0714
Attn: Mr. James Williams

Christine Carraher
P.O. Box 935, Twentynine Palms, CA 92277
(760) 361-0505 jesmith@eee.org

March 16, 1999

Debra Man, Chief
Planning and Resources Division
Metropolitan Water District of
Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

RE: Cadiz Groundwater Storage and Dry-Year Supply Program

Dear Ms. Man:

Thank you for the opportunity to respond to the Notice of Preparation of a Draft Environmental Impact Report for the Cadiz Groundwater Storage and Dry-Year Supply Program ("Project").

I believe there are a number of critical areas that must be addressed in the Environmental Impact Report ("EIR") in order for the public to make an informed assessment of the Project. The following issues need to be covered and fully analyzed in the EIR:

I. WATER QUALITY

1. Colorado River quality, not only total dissolved solids but also specific chemical composition (including all potential toxics) and radioactivity.
2. Present water quality in the aquifer system ("Aquifer System") underlying the Cadiz and Fenner valleys.
3. Overall quality effects of mixing Colorado River water with Aquifer System water.

II. WATER SUPPLY

1. Colorado River water claims and allocations, including those of Mexico, and projections of potential changes over the next 50 years.
2. Present and future water supply and demand in the Southern California area. This should include analysis of supplies and demands for all of Southern California, not solely the service area of Metropolitan Water District of Southern California ("MWD"), with additionally a specific analysis of supplies

and demands in Mojave desert ("Desert") areas that could conceivably be served by Aquifer System supplies. P7-21

3. Specific amounts and regulatory requirements regarding any indigenous Aquifer System water that potentially would be removed. P7-22

III. DEVELOPMENT/POPULATION ISSUES

1. The possibility of reciprocal regulation of rampant housing/commercial/industrial/transportation development ("Development") in Southern California and MWD service areas so as to discourage continued suicidal increase in demand for water, an increase for which this Project has the potential to serve as an enabler and thereby help foster the ultimate disaster of utter depletion and destruction of resources - not a favor to anybody. P7-23
2. The possibility of the institution of strict water conservation measures in MWD service areas in reciprocity for tampering with and depleting water resources in the Desert. P7-24
3. Effects on Development in Desert areas through loss of potential water supply, and attendant Environmental Justice issues. P7-25

IV. LOCAL ENVIRONMENTAL EFFECTS

1. Effects of spreading basins and potential canal-type conveyance facilities on local ambient humidity. P7-26
2. Effects of facilities on biological resources, particularly of physical-plant obstruction on species mobility; human intrusion on species health; water quality and quantity changes on species health, including impacts on access and use; subsidence, erosion and other soil and geological impacts on individual species and the integrity of the entire local biosystem. P7-27
3. Effects of subsidence, erosion and other soil and geological impacts on the integrity of the entire local ecosystem, including hydrological and seismic aspects. P7-28

V. AESTHETICS

1. Visual changes from all local viewpoints, including those approached on foot and not just those easily accessed by motor vehicles. P7-29

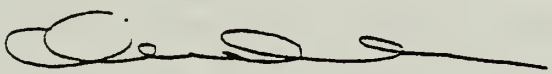
VI. LAND USE AND PLANNING

1. Any and all potential impacts to designated Wilderness Areas, including vistas and other effects from extra-Area activities. Note: There is a confusing typographical error in the NOP under "Land Use and Planning" in the Potential Environmental Effects section, to wit: "The Project traversing these Wilderness Areas." [sic]

It should be noted that all analyses should examine effects projected to at least the next 50 years - the life-term of the project.

Again, thank you for the opportunity of responding. I look forward to receiving all future public documents issued on this Project.

Sincerely,



Christine Carraher

P8

Metropolitan Water District of S. California
PO Box 54153
Los Angeles, CA 90054

Dear Sirs:

March 2, 2000

I do not think that water storage in the Cadiz Groundwater Storage and Dry-year Supply program makes sense. It appears that this is a poorly disguised attempt to actually pump more water out than is being recharged. A 190 foot drop in ground water levels clearly shows that the current water supply will be mined and an insignificant amount of recharging will occur.

I am concerned that springs will dry up and vegetation will change as a result of water table lowering. The water level should not be allowed to drop below the current level. All resources on our public lands should be conserved, including water.

P8-1

Regards:

William T. Mccarvill
330 Knottingham, Circle
Livermore, CA 94550

Alan Siraco
Amanda K. Roze
4459 Bennett View Drive
Santa Rosa, California 95404

March 3, 2000

Jack Safely
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, California 90054-0153

P9

Re: Cadiz Water Storage and Dry Year Supply Program

Dear Mr. Safely:

This letter is submitted in response to the District's invitation to the public to comment on the Draft EIS/EIR for the above-captioned proposed project. We are active desert hikers and have several concerns about the environmental impacts of the proposed project. While we feel that water storage and retrieval is a sound policy in theory, the preferred alternative in the DEIS/DEIR is grounded in a lack of information that makes any reasonable determination of the potential impacts impossible. Therefore **we request that the District call for additional information and promulgate an amended or supplemental DEIS/DEIR to fully disclose the environmental impacts of the project.** P9-

We question the purpose and need for the specific project proposed. The DEIS/DEIR projects a 170,000 acre-feet dry year deficit by the year 2020. While the 150,000 acre-feet maximum draw per year will meet a large percentage of this need, the need is based upon a growth projection that should not be assumed. If growth requires drastic measures to meet a water need, then the growth should be regulated rather than increasing resource extraction. By analogy: a projected growth in the demand for jewelry would not, in itself, justify a gold mining operation that disturbed pristine lands. The need for the project must b analyzed in context. Growth must be addressed in order to justify the need for the project. P9

We are also opposed to the construction of the water pipeline outside the existing utility corridor. The described project does not provide sufficient justification for the encroachment on undisturbed lands. The existing right of way possessed by the railroad is preferable to disturbing pristine lands in Cadiz and Sheephole valleys. In addition, the project calls for the construction of a road and 4-story power line through what is currently a 100,000 acre roadless P9-

area. This is not justifiable given the existing right of way available for the construction of such infrastructure. P9-3

The project calls for the extraction of underground water that exceeds the volume of water being diverted from the Colorado River, and it expects a substantial land subsidence as a result. Groundwater, such as that available in the aquifer must be recognized as an extremely valuable "resource" for future generations. The drawdown of the groundwater in the Cadiz aquifer and the resulting land subsidence will have wide-ranging environmental impacts that have not been analyzed or fully studied. Until that is done, no rational determination can be made of the environmental impacts of the project or the mitigation measures necessary. P9-4

Indeed, the recent findings and opinions submitted by the USGS, at BLM's request, and those contained in a report of an independent San Bernardino County groundwater study suggest that the project must be re-evaluated for its purpose and need, and its environmental impact with respect to the drawdown of the groundwater in the region. If groundwater recharge rates are not accurately calculated, then the availability of water in the aquifer during dry years may obviously not be sufficient to justify the impacts this project will have — those presently known, and those expressly deferred by the Met. In addition, knowledge of the impacts to the surrounding region is dependent on an accurate hydrology study. P9-5

Please take the time necessary to review all the data before presenting this project for approval. There is no rush. The water needs identified in the project are 20 years away. Surely several more months of study will not jeopardize the rate of growth in the southern California counties. Thank you for your attention to these matters. P9-6

Sincerely,

Alan Siraco
Amanda K. Roze

SAT, MARCH 4, 20

DIRK REED, PROJECT MANAGER

MWD

P10

P.O. BOX 54153

LA 90054

RE: MWD'S PROPOSAL TO BUILD AN UNDERGROUND PIPELINE FROM THE COLORADO RIVER TO THE CADIZ AMBOY AREA FOR UNDERGROUND AQUIFER STORAGE.

P10-1 FIRST OF ALL, WHY WASN'T THERE ANY PREVIO ANNOUNCEMENT OF THIS, EXCEPT NOW WHEN IT'S AL A DONE DEAL? ARE THERE GOING TO BE ANY PUBLI

P10-2 HEARINGS ON THIS? IS THIS PROJECT PART OF

P10-3 THIS 850 MILLION TAXPAYER WINFALL THAT BURIED IN PROPOSITION 13 ON THIS TUESDAY'S B THAT'S GOING TO END UP IN CADIZ COMPANY'S BANK ACCOUNT?

P10-4 I'M AGAINST THIS PROJECT BASED ON

(COVE

ENVIRONMENTAL CONCERNS AND THIS PROJECT GOES IN
THE OPPOSITE OF THIS STATE, ESPECIALLY SOUTHERN CALIF,
4 LIVING WITHIN ITS MEANS WITH REGARDS TO WATER
USE. IF THERE ISN'T ENOUGH WATER FOR THE
PROJECTED POPULATION GROWTH, IT'S TIME TO DO
5 SOMETHING ABOUT THE POPULATION ESPECIALLY
UNCHECKED IMMIGRATION, ALSO DO THINGS LIKE
6 CONSERVATION, RECLAMATION, AND RECYCLING
PROGRAMS.

Dennis Bell
DENNIS BELL
MAIL: 406 S. SAN MATEO
REDLANDS, CA. 92373

3/4/00

Jack Safely
Metropolitan Water District
Bx 54153
Los Angeles, CA 90054-0153

P11

Re: Cadiz Valley Project

Dear Sir:

I am very concerned about this project. After reading the EIR I feel that it does not contain enough information for the public or decision makers to make a rational decision on this project.

1. How can water pumped from the deep aquifer be recharged by spreading water on the surface, if there are impermeable clay layers above the deep aquifer?

2. Studies show that only 3000 --3500 ac ft/yr can be withdrawn sustainably. Cadiz has already taken 6000 ac ft for agricultural operations. Please explain how 30,000 ac ft/yr can be withdrawn sustainably, as proposed. Substantial drawdown of groundwater levels will cause salt water intrusion; how will this and other adverse impacts be mitigated

3. I believe that according to law, no more can be pumped than can be sustained indefinitely without drawing down the aquifer. It has taken millions of years for the groundwater basin to achieve stability.. During wet years, more water flows to the dry lake beds, both on the surface and underground. The excess evaporates or refills previously diminished levels. There is balance at the present time; net exports equilivant to the full amount of groundwater recharge per year is unacceptable. BLM certainly should not allow water under our public land to be mined. If there is a 190 ft drop in the groundwater table, what is the effect on springs in the area, including in Wilderness areas?

4. Quality as well as quantity must be protected. Please explain how very good quality underground water can be withdrawn and be replaced by poor quality Colorado River water without impairing the quality of the underground aquifer.

5. If there is subsidence as predicted in the EIR, this means the underground pore spaces where the water is stored have collapsed. Please explain how these pore spaces can be restored after water is withdrawn so the underground aquifer can again store the same amount of water as before any was withdrawn.

6. Of the 1 million ac ft of water stored, how much can actually be pumped back for use at a later date?

7. Where will water come from after 2015? Is there a guarantee that any water will be available after this date?

8. An alternative of locating the roads and powerlines along existing disturbed corridors should be analyzed.

This, and many other impacts of this ill conceived project, must be identified and mitigated. If this project continues, please issue an EIR that honestly discusses all of the impacts. Also please keep me on the mailing list.

Sincerely,

Stan Haye

Stan Haye
230 Larkspur
Ridgecrest, CA 93555

P. O. Box 400142
Hesperia, CA 92340-0142
March 5, 2000

Dirk Reed,
MWD Project Manager
P. O. Box 54153
Los Angeles, CA 90054

P12

Re: News Article, Press Dispatch 5-5-00
Subject: Cadiz Pipeline

I read the above-mentioned article with much concern. While I realize the need for more water sources, it seems we will be cutting off our noses despite our faces implementing the plan mentioned without much more diligent research and fact finding. P12-1

Selling only the amount of "projected" rainfall, which is an exaggeration, seems a bit shortsighted. Although there are many technologies to estimate the rainfall, Mother Nature does not always come through according to Man's expectations. P12-2

I am concerned for the important resources of the preserve. I recall that a few years ago more than 30 bighorn sheep perished due to the lack of water because of changes in their particular area. P12-3

I concur with Mary Martin, superintendent for Mojave National Preserve, that the environmental report is "technically flawed and does not portray an adequate description of potential impacts and must be revised". P12-4

I urge you to reconsider approving this proposal as it stands and implement the necessary changes to protect our water and all other resources without any major impact. P12-5

One more item, why is the comment deadline so quick after a subject is published in the media. It does not make for good relations with the public that are the most concerned, and, perhaps have not had a chance to read about the subject. Is it because the agencies rely on this fact knowing that the comments will not arrive in a timely manner? I find this is fact in most controversial issues. Fortunately, I had a moment to read the news today and, hopefully, the US Post Office will co-operate. P12-6

Sincerely,

Carol A. Landry

cc: Jerry Lewis (R)

Ingrid Crickmore
1290 Hopkins St. apt. 37
Berkeley, CA 95702
(510) 525-8742

3/6/00

FAX
(submitted by on 3/7/2000)

P13

Metropolitan Water District of Southern California
P. O. Box 54153
Los Angeles, CA 90054-0153
Attn: Jack Safely

Dear Sir:

The Cadiz Groundwater Storage and Dry-Year Supply Program, as presented in the EIR, seems highly questionable and not clearly defined. Given the immensity of the groundwater depletion, the location near sensitive Wilderness areas, and the lack of clarity as to the percentage of stored water that will actually be recoverable, I feel that this proposal should be denied. At the very least, a supplemental EIR is necessary to fully address the deficiencies of this one. P13-

To begin with, the touted wet year storage and dry-year supply element of this proposal amounts to only a third of the total water withdrawal applied for in the proposal's preferred alternative. A more accurate title for this EIR would be The Cadiz 2-Million acre-feet Groundwater Removal and (Separate) 1-Million acre-feet Storage and Retrieval Program. This alone is a serious problem with the EIR, if it is truly intended to be a document that the public can understand and respond to. Many who would not approve of this huge a groundwater depletion will not read or respond to this EIR as it appears to be a water storage and retrieval project alone. P13-

GROUNDWATER REMOVAL: P13-

The EIR's own figures on groundwater recharge (which are highly disputed by the United States Geological Survey) claim that up to 30,000 acre-feet of native groundwater can be recharged by natural sources each year (assuming there is any rainfall), and that the amount they intend to remove is rechargeable. Yet they propose to remove 150,000 acre-feet of groundwater per year, with an admitted overall land subsidence of 22 inches, and a 190-foot drop in groundwater levels. It is my understanding that once groundwater tables have been lowered and the surrounding rock has compacted accordingly, the previous water capacity can never be restored. Using these figures, each year of pumping groundwater will result in a permanent depletion of 120,000 acre-feet of water which may never be replenished.

There is no point in using non-renewable water sources as a short-term supply to a metropolitan area whose water needs are continually growing. The proposed pumping would drain the groundwater from an area extending vast distances beyond the privately held land of the Cadiz Land Company under many hundreds of thousands of acres of public lands. This groundwater has underlain these valleys for the last 10,000 years, and may have major ecological significance to the whole area (including but not limited to the Cadiz Dunes Wilderness Area, which directly adjoins the project area). It appears that not one study was done to determine what impact this proposed pumping would have on nearby wilderness areas. P13-4

And aside from the obvious impacts to the underground water table and to springs, there may be other impacts we cannot yet anticipate from such major changes to such a huge underground system. This is not a risk worth taking for what is merely a temporary drop in the bucket for the long-range water needs of Los Angeles. P13-5

The above is the scenario using the proposal's own figures of 30,000 acre-feet for annual groundwater recharge. However, the figures in the USGS (United States Geological Survey) report that was just issued on the question of groundwater recharge in this area estimate that only about 3,000 acre-feet can be recharged annually—only a tenth of the amount claimed in the EIR. This is a glaring and unresolved difference that the Bureau of Land Management and the public cannot ignore. If the project is not denied (as I feel it should be) on the basis even of the perhaps inflated claims of the proposal itself, a completely reworked supplemental EIR must be submitted that addresses the issues raised by the USGS report. P13-6

RIVER WATER STORAGE AND RETRIEVAL:

Another problem of the EIR is its inadequate presentation of the Colorado River water storage and retrieval portion of the Cadiz proposal. Specifically, no figures are given for the amount of water that will be lost due to down-slope underground run-off into the deep salt deposits underlying Bristol and Cadiz dry lakes, to the west and south of the storage site respectively. The EIR acknowledges that some of the stored water will do just that (pages 5-100 to 5-103) but it gives no figures or percentages for the total amount that would be lost. The project's diagrams of the underground strata show a definite downward slope of these strata towards the dry lakes. Is all of the "stored" water likely to run off into the deep, salt-filled depressions under the dry lakes? Half of it? A quarter? We have no figures and so no way to evaluate the efficacy P13-7

of storing valuable Colorado river water during wet years for uncertain retrieval during dry years. Nor does the EIR give any figures for annual water loss through evaporation during the percolation process. The EIR proposes taking 100 million acre-feet of water from the Colorado river, but does not tell us how much of that will actually be available for retrieval. This is another deficiency of the present EIR that needs to be corrected. P13-

Furthermore, how can the Cadiz Land Co. or the Metropolitan Water District be sure that the Colorado River water they propose to store will even be available to them? Control over the disbursement of water from the Colorado River will have switched over to the Secretary of the Interior for the last 35 years that this proposed 50-year storage and retrieval project would be in operation. How can the Met be sure that this project will get, or continue to receive the water necessary for the storage and retrieval portion of this proposal? Unless this is addressed in the EIR, the public cannot evaluate the impact and cost-effectiveness of this proposal. P13-

The insufficiencies of the EIR with regard to this storage and retrieval plan are particularly troubling in light of the close connections of Kieth Brackpool, the director and chief executive officer of the Cadiz Land Co. with Governor Gray Davis; the considerable campaign contributions the Cadiz Land Co. made to Davis during his gubernatorial bid; and the recent revelations that this project might receive millions of dollars in state subsidies if Prop. 13 passes on Tuesday—this being the result of a mysterious late add-on to the bill that was not widely publicized. Serious questions arise as to whether this water storage and retrieval proposal is truly a feasible project, or just a bottomless pit the state of California will throw money into and never get any water out of. Even in the best light, the whole proposal seems to be less about storing river water than about extracting non-renewable groundwater, which is not something most Californians would want to subsidize. P13-

CADIZ DUNES WILDERNESS AREA and OTHER BLM DESERT LANDS: P13-

The Cadiz Dunes Wilderness Area is right next to the proposed project area, and the proposed route for the project's pipeline and associated powerline and road would go right along the border of the wilderness. There is a seldom-used train track that follows the northeast boundary of the wilderness area which is where the project's proposed right of way would be located. I have visited and camped at the Cadiz Dunes, and can testify to the beauty and remoteness of the dunes as well as the surrounding landscape of open desert valleys and colorful mountains. At present, there is only a low, single wire, wood pole-supported electric line

along the railroad, which is about 3 miles away. This "power line" line is barely visible and not even functional—poles missing, and wire broken. This is a far cry from the 3-wire, 42-foot-tall metal power towers that the project proposes to install. In view of the proximity of the Wilderness Area and the unspoiled nature of most of the surrounding lands, this proposal should have included an alternative of burying the powerline underground to prevent negative impacts to the viewshed. P13-10

Elsewhere, the proposed project's right-of-way over public lands leaves the existing railroad corridor and forges across wide expanses of unspoiled desert lands, creating a whole new roadway, pipeline and powerline across a vast, BLM-managed roadless area. This is completely unnecessary. The Cadiz right-of-way should follow the existing railroad corridor whenever it can. This would prevent a redundant road/right-of-way in hitherto roadless open desert, which is an important natural resource in California's Desert Conservation Area. P13-11

According to the Met, this alternative (using the RR corridor) was considered but not incorporated into the EIR because it would be more costly than their proposed new right-of-way through the roadless area. This is not a legitimate reason to leave it out of the EIR. It should have been included as the environmentally preferred alternative. The public has the right to see such an alternative and judge its value for itself. And the Bureau of Land Management, as the manager of these public lands, also has a right to evaluate all the alternatives that may affect the area. P13-12

MONITORING:

The EIR makes no mention of any kind of program to monitor and control the rate of pumping etc, based on the effects on the water table and the environment. The monitoring plan should be explicitly set forth in the EIR so the public can evaluate it. Such a program should have both public and BLM oversight. This is another significant deficiency within this EIR that makes it necessary to call for a supplemental EIR. P13-13

FINAL NOTE:

In March of 1996 Keith Brackpool, director and chief executive officer of Cadiz Land Co. led a successful effort against the proposed Rail Cycle Dump near Cadiz, arguing that we must "...protect and preserve our precious water resources from the threat of contamination..." He now proposes to store a million acre-feet of untreated Colorado river water by mixing it into unpolluted native groundwater. P13-14

I strongly urge the Metropolitan Water District of Southern California to abandon this flawed plan. I urge the Bureau of Land Management to turn down this project and not allow it to deplete the native groundwater of our public lands, or to build new roadways and powerlines over open desert. If this project is not stopped right now, it must at least be required to address the glaring deficiencies and contradictions in its EIR and produce a supplemental EIR which the public can use to come to an informed decision. P13-

Thank you for the opportunity to comment. P13

Sincerely,

Ingrid C. Crickmore

March 7, 2000

Re: Cadiz Valley Groundwater

P14

Dear Mr. Safely:

In the light of earlier concerns raised by members of Desert Survivors, and particularly in view of the new USGS report, I feel it is imperative that a more adequate EIR be done on this project. Please act ~~accordingly~~ responsibly. P14-1

Sincerely

Hanaf Russell

Hanaf Russell
Box 287
Ross CA 94957

Jerry Smith
POB 935
Twentynine Palms
California (92277)
760 367 6931
carrsmith@earthlink.net

P15

March 8, 2000

Metropolitan Water district
Water Resource Management Group
P.O. Box 54153
Los Angeles, California (90054-0153)

Attn. Mr. Dirk Reed
Mr. Jack Safely

Re: Draft EIR/S, CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM

ADDENDUM to comment letter of Feb. 29 by Christine Carraher and Jerry Smith

Dear Sirs;

It has come to my attention that the people that would be the most directly effected by the project were not given proper notice of the scoping meetings nor were they sent copies of the EIR/S. In fact, the EIR/S distribution list indicates only one person, in all of Fenner Valley, Dennis Casabier, who was provided with a copy. If true, this would be a violation of the Good Faith Doctrine.

The obvious alternative of "Storage Only" (take only what you put in) was not considered.

Not knowing what happens to the 30,000 af of recharge per year, I would like some discussion on how the basin surface will be effected by a rise or lowering of the water table.

Good faith seems to be missing in that I and others have only received one volume of the EIR/S. There is no indication within that one volume that there are, in fact, several volumes making up the report.

Sincerely,

Jerry Smith

P16

15457 Eto Camino Road
Victorville, Ca 92394
March 6, 2000

Metropolitan Water District of Southern California
Attn: Jack Safely
P. O. Box 54153
Los Angeles, CA 90054-0153

Dear Metropolitan Water District:

Regarding the Cadiz Project, in which the Metropolitan Water District of Southern California and Cadiz, Inc. would store water in the Mojave Desert aquifers to be used in dry years, I have great concerns. It now appears the ground water studies are for this project may be highly flawed. Now that the USGS has provided significant new information, there should be a new or supplemental EIR done on this project. P16-1 P16-2

As desert residents, many of us are concerned regarding the detrimental effects this project could have on our desert environment. P16-3

Sincerely,

Carol A. Wiley

Carol A. Wiley

P17

Hello,

My wife and I are just returned from a 5 day camping trip to the Old Woman Mountains S/E of Cadiz. Catching up on my reading I was saddened greatly to read about Cadiz, Inc plans for that area's water. The flock of Chukar grouse and the four big horn sheep we saw will probably be even more affected. The chances of the springs both species depend on surviving are problematical to say the least.

Thank you for fighting the good fight. Keep it up and know others are behind you and appreciate your efforts and don't begrudge you your budgets.

If we can be of help in a letter writing campaign or anything else please contact us.

Until: 3/21 Barry & Leslie Melics
BX 191
Tecopa CA 92389

After: 930 west 10th St.
Port Angeles WA 98363
360-452-9513

Again our thanks,
B W M

RECEIVED
00 MAR 16 AM 11:40
BUREAU OF LAND MANAGEMENT
BARSTOW RESOURCE AREA
BARSTOW, CA

The December 15, 1999 Public Scoping Meeting at Cadiz consisted of formal presentations by Metropolitan and P&D Environmental staff, followed by public comment. The transcript for this meeting includes both the formal presentations and the public comments. The transcript of the formal presentation is on pages 1 through 17 of the transcript. The part of the transcript for public comments is on pages 17 through 19 of the transcript.

COPY

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM

M1

PUBLIC SCOPING MEETING

WEDNESDAY, DECEMBER 15, 1999

AT CADIZ, INC.

96-726 HIGHWAY 66, CADIZ, CALIFORNIA

AT 11:18 A.M.

REPORTED BY: KAREN KOVACS, C.C.R., R.P.R.
CALIFORNIA C.C.R. #6485/NEVADA C.C.R. #550

MS. SALENIUS: I'D JUST LIKE TO WELCOME ALL OF YOU THAT HAVE COME TO COMMENT ON THE DRAFT ENVIRONMENTA IMPACT REPORT, ENVIRONMENTAL IMPACT STATEMENT FOR THE CADI PROJECT.

WE'RE HERE TODAY TO PROVIDE THESE COMMENTS TO ALLOW BOTH THE METROPOLITAN WATER DISTRICT AND B.L.M. TO UNDERSTAND WHAT YOUR CONCERNS ARE AND MAKE DETERMINATIONS TO THE ADEQUACY OF WHAT'S BEEN DONE TO DATE, AND TO PROVID ANY ADDITIONAL INFORMATION THAT WE NEED TO PUT IN THE DOCUMENT BEFORE IT'S FINALIZED.

MY NAME IS SYLVIA SALENIUS. I'M WITH P & D ENVIRONMENTAL. WE WERE THE PRIMARY PREPARERS OF THE ENVIRONMENTAL DOCUMENT. WITH ME HERE TODAY -- HE'LL BE MAKING A PRESENTATION ABOUT THE PROJECT -- IS DIRK REED. HE'S PROGRAM MANAGER FOR THE METROPOLITAN WATER DISTRICT.

WE ALSO HAVE IN THE AUDIENCE JACK SAFELY. JACK, RAISE YOUR HAND. HE'S BEEN ASSISTING DIRK ON THE PROJECT. JACK WILL BE RECEIVING ANY MAIL COMMENTS THAT YOU'D LIKE TO SUBMIT AT A LATER DATE.

ALSO KATHY KUNYSZ IS HERE. KATHY'S BEEN INVOLVED IN SOME OF THE BIOLOGICAL AND CULTURAL-RESOURCE ISSUES ON THE PROJECTS. AND KEN ASHFORD IS HERE SOMEWHERE. HE WAS A THE SIGN-IN TABLE EARLIER, THE GENTLEMAN THAT WAS THERE. HE'S ALSO WITH METROPOLITAN WATER DISTRICT, DOES A LOT OF THEIR PUBLIC PARTICIPATION PROGRAMS.

KEN DOWNING IS HERE. HE'S FROM THE B.L.M. SO WE HAVE BOTH AGENCIES REPRESENTED HERE.

THE PURPOSE OF THIS MEETING IS TO PROVIDE -- AGAIN, PROVIDE YOU WITH AN OPPORTUNITY COMMENT ON ADEQUACIES OF THE ENVIRONMENTAL DOCUMENTS. AND ONE OF THE THINGS THAT'S IMPORTANT IN ENVIRONMENTAL LAW IS THAT THE DOCUMENTS ARE WRITTEN SO THAT THE DECISION-MAKERS KNOW THAT THE POTENTIAL IMPACTS OF THE PROJECTS ARE PROPERLY DISCLOSED.

AND SO WHATEVER COMMENTS YOU WANT TO MAKE ABOUT THE CONTENTS OF THE ENVIRONMENTAL DOCUMENTS AND THE PROPER DISCLOSURE OF IMPACTS ARE THE TOPICS THAT WE'RE SEEKING TO TALK ABOUT TODAY.

THERE WILL BE A FULL 90-DAY REVIEW PERIOD FOR THESE DOCUMENTS, SO JUST BECAUSE YOU'RE HERE TODAY AND MIGHT MAKE COMMENTS TODAY DOESN'T MEAN THIS IS YOUR LAST OPPORTUNITY TO COMMENT.

THE COMMENT PERIOD WILL BE OPEN UNTIL FEBRUARY 23RD OF THE YEAR 2000. I KNOW IN SOME OF THE DOCUMENTS IT SAYS FEBRUARY 23RD, 1999. THAT'S NOT RIGHT. IT'S FEBRUARY 23RD, 2000. SO IF YOU PREFER TO SEND ANY WRITTEN COMMENTS, YOU HAVE PLENTY OF OPPORTUNITY TO DO THAT.

THE ORAL COMMENTS THAT WE RECEIVE TODAY WILL BE RECORDED VERBATIM. AS YOU CAN SEE, WE HAVE GOT OUR TRANSCRIBER HERE. THOSE COMMENTS AND ANY WRITTEN COMMENTS YOU GIVE US WILL BE INCLUDED IN THE FINAL E.I.R./E.I.S. AND

ALSO RESPONSES TO THOSE COMMENTS WILL BE INCLUDED IN THE DOCUMENT, THAT FINAL DOCUMENT THAT WOULD BE RELEASED ROUGH MARCH OF THE YEAR 2000.

AND ALL OF THAT INFORMATION, THE INFORMATION IN THE DRAFT E.I.R. AND E.I.S. AND THE INFORMATION IN THE FIN E.I.R. AND E.I.S. WILL BE USED BY BOTH AGENCIES, THE METROPOLITAN WATER DISTRICT BOARD OF DIRECTORS AND THE B.L.M., TO MAKE DETERMINATIONS AS TO WHETHER TO PROCEED WI THIS PROJECT, AND ALSO ON THE B.L.M.'S BEHALF TO ALLOW THE LAND THAT IS IN B.L.M. JURISDICTION TO BE USED FOR THE PROJECT.

OUR AGENDA FOR THE MEETING RIGHT NOW WILL BE TO HAVE DIRK MAKE A PRESENTATION ABOUT THE PROJECT AND THE FINDINGS OF THE ENVIRONMENTAL DOCUMENT.

AFTER THE PRESENTATION, WE'LL ALLOW YOU TO ASK QUESTIONS AND MAKE ANY COMMENTS THAT YOU'D LIKE TO MAKE, A AFTER WE GET ALL OF YOUR COMMENTS, WE'LL TAKE A BRIEF BREA IF IT APPEARS THAT IT'S UNNECESSARY, IF WE GET COMMENTS RATHER QUICKLY, WE WON'T HAVE TO TAKE A BREAK AND THEN WE' TRY TO ANSWER ANY OF THE QUESTIONS WE'RE CAPABLE OF ANSWERING RIGHT AT THIS POINT.

FOR YOUR CONVENIENCE; THERE ARE COPIES OF THE DRAFT E.I.R., E.I.S. AVAILABLE FOR REVIEW AT THE NEEDLES, PALMS, BARSTOW AND SAN BERNARDINO BRANCH LIBRARIES, AND AT METROPOLITAN WATER DISTRICT IN LOS ANGELES AND AT THE B.L.

OFFICE IN RIVERSIDE.

AND IF YOU'RE INTERESTED IN KNOWING WHERE THOSE LOCATIONS ARE, KEN CAN PROVIDE YOU WITH THAT INFORMATION BECAUSE IT'S LISTED IN THE ENVIRONMENTAL DOCUMENT. AT THIS POINT, I'D LIKE TO TURN IT OVER TO DIRK AND HAVE HIM TELL YOU ABOUT THE PROJECT.

MR. REED: THANKS, SYL.

AGAIN, I'M DIRK REED, PROJECT MANAGER OF THE CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM. AND BASICALLY, AS SYL LAID OUT TO YOU, WHAT I'M GOING TO DO IS FIRST DESCRIBE THE PUBLIC-INVOLVEMENT PROCESS THAT WE'RE INVOLVED IN HERE TODAY, THEN I'M GOING TO GO INTO A BRIEF DISCUSSION ABOUT THE PROJECT ITSELF, GIVE YOU SOME OF THE DETAILS ABOUT IT, GOING TO GET YOU FAMILIAR WITH THE PROJECT AND THEN GO INTO THE PUBLIC COMMENT, TURN IT BACK OVER TO HER, LET HER GO INTO THE PUBLIC COMMENT PROCESS.

BASICALLY, WHY WE'RE HERE TODAY IS THESE MEETINGS ARE BEING HELD TO OBTAIN COMMENTS; IN OTHER WORDS, FOR YOU HAVE AN INPUT INTO THE PUBLIC-INVOLVEMENT PROCESS, FOR YOU TO TELL METROPOLITAN WATER DISTRICT'S BOARD AND ALSO B.L.M. WHAT YOU CONSIDER SIGNIFICANT AS PART OF THIS PROJECTS, WHAT WE HAVE LOOKED AT, WHAT WE'VE LOOKED AT IN ENOUGH DETAIL, WHETHER HE NEED TO DO MORE ANALYSIS. THIS IS YOUR OPPORTUNITY TO BECOME PART OF IT.

WHAT WE'RE GOING TO BE DOING IS GIVING A BRIEF

OVERVIEW, AS I MENTIONED, AND THEN DON'T FORGET, YOU CAN SEND IN A LETTER BY FEBRUARY 22ND -- 23RD -- THERE WILL BE BIG LINE THROUGH THIS IN A LITTLE WHILE -- FEBRUARY 23RD, GET YOUR WRITTEN COMMENTS, SO YOU DON'T HAVE TO GET UP AND SPEAK IF YOU DON'T WANT TO TODAY.

THE METROPOLITAN WATER DISTRICT WAS CREATED IN 1928 UNDER THE ENABLING ACT OF THE CALIFORNIA LEGISLATURE. METROPOLITAN WATER DISTRICT SUPPLIES SUPPLEMENTAL WATER TO SOUTHERN CALIFORNIA COVERING THE SIX COUNTY REGIONS OF: VENTURA, LOS ANGELES, RIVERSIDE, ORANGE, SAN DIEGO AND SAN BERNARDINO COUNTIES.

IN PARTICULAR, METROPOLITAN WATER DISTRICT PROVIDES 60 PERCENT OF THE WATER USED IN THIS AREA. IN SA BERNARDINO COUNTY, METROPOLITAN WATER DISTRICT PROVIDES TWO-THIRDS OF THE IMPORTED WATER USED IN SAN BERNARDINO COUNTY. BY 2020, THIS VISION PROVIDES ABOUT 300,000-ACRE FEET PER YEAR TO SAN BERNARDINO COUNTY.

METROPOLITAN WATER DISTRICT RECEIVES ITS WATER FROM TWO PRIMARY SOURCES: ONE OF THEM IS THE CALIFORNIA AQUEDUCT FROM NORTHERN CALIFORNIA BAY DELTA AREA AND THE SECOND ONE IS THROUGH THE COLORADO RIVER AQUEDUCT THROUGH THE COLORADO RIVER.

PROJECT OBJECTIVES OR THE PROJECTS TODAY I WANT TO TALK ABOUT REALLY ARE THREE-FOLD: ONE OF THEM IS ENHANCING THE METROPOLITAN WATER DISTRICT'S WATER SUPPLIES

BY ALLOWING US TO STORE WET-YEAR WATER WHEN IT'S AVAILABLE IN A GROUNDWATER BASINS; IN OTHER WORDS, GET IT WHEN IT'S RAINING, GET IT TUCKED AWAY IN STORAGE FOR A LATER USE.

ANOTHER PIECE OF IT IS TO PROVIDE ADDITIONAL DRY-YEAR SUPPLIES; IN OTHER WORDS, IN ADDITION TO THIS WATER THAT'S BEEN STORED THERE IS ADDITIONAL SUPPLIES THAT ARE AVAILABLE THAT CAN BE EXTRACTED OR TAKEN FROM THIS AREA AND MOVED TO SOUTHERN CALIFORNIA.

AND THEN THE THIRD ONE IS TO IMPROVE WATER QUALITY, ENHANCED WATER QUALITY.

I WANT TO GIVE YOU A LITTLE BIT OF AN IDEA OF THE GROUNDWATER BASINS IN THE DESERT AREA. I THINK MOST EVERYONE'S FAMILIAR WITH THESE, BUT BASICALLY THERE'S TWO KINDS: KINDS THAT DRAIN BACK TOWARDS THE COLORADO RIVER, SUCH AS THE PIUTE; THERE'S THE OTHER KINDS THAT DRAIN DOWN TOWARDS THE DRY LAKE BEDS WHERE THE WATER EVAPORATES OFF. YOU CAN TELL THE DIFFERENT KINDS OF GROUNDWATER BASINS.

FOR INSTANCE, IN THE BRISTOL/CADIZ AREA, THE DRY LAKE BEDS ARE VERY -- WAY WHITE. THAT'S DUE TO THE GROUNDWATER MOVING TOWARDS THESE DRY LAKE BEDS AND EVAPORATING OFF, LEAVING BEHIND THE SALTS.

SOME OF THE OTHER DRY LAKE BEDS THAT YOU CAN SEE, SUCH AS HAYFIELD, IT'S A BROWN COLOR, AND THAT'S BECAUSE THAT'S A TOPOGRAPHIC DEPRESSION WHERE THE SURFACE WATER RUNS TO AND THEN GOES INTO THE GROUND.

BASICALLY, BELOW THESE DRY LAKE BEDS WATER IS ABOUT 500 FEET BELOW THE SURFACE, 600 FEET BELOW THE SURFACE, SO THERE'S A LOT OF DIFFERENCE IN THE GROUNDWATE BASINS THEMSELVES.

SO I MENTIONED YOU'VE GOT TWO KINDS, PIUTE TYPE, CHEMEHUEVI TYPE THAT DRAIN BACK TOWARDS THE COLORADO RIVE AND THE KINDS THAT DRAIN TOWARDS THE DRY LAKE BEDS WHERE T WATER EVAPORATES OFF INTO THE ATMOSPHERE.

THE PROJECT I'M GOING TO TALK ABOUT, THE CADIZ GROUNDWATER STORAGE PROJECT, BASICALLY HAS THREE MODES OF OPERATION: ONE, WE ARE GOING TO STORE WATER IN THE GROUNDWATER BASIN; TWO, WITHDRAW THAT STORED WATER, AND TH THIRD ONE, WE'RE GOING TO TRANSFER SOME ADDITIONAL WATER O OF THE GROUNDWATER BASIN DURING DRY YEARS. THAT'S BASICAL WHAT THE PROJECT HAS INVOLVED IN IT.

IN ORDER TO DO THESE THREE MODES OF OPERATION, FACILITIES HAVE TO BE CONSTRUCTED. YOU HAVE TO BE ABLE TO GET THE WATER IN, GET THE WATER SETTLED INTO THE GROUNDWAT BASIN, AND THEN EXTRACT IT, THE WATER, MOVE THE WATER BACK OUT.

TO FACILITATE THIS, WHAT WE HAVE TO DO IS CONSTRUCT -- THIS IS DISCUSSED IN QUITE A BIT OF DETAIL I THE ENVIRONMENTAL DOCUMENT -- A CONVEYANCE PIPELINE 35 MIL ALONG THE CALIFORNIA AQUEDUCT DOWN BY THE IRON MOUNTAIN PUMPING PLANT UP TO THE CADIZ AND FENNER VALLEY, FENNER GA

WHERE THE WATER WILL BE PUT INTO A SPREADING BASIN, APPROXIMATELY 400 ACRES OF SPREADING BASINS WHERE THE WATER WILL INFILTRATE INTO THE GROUNDWATER BASIN.

AFTER IT'S STORED THERE, WE'LL NEED 30 EXTRACTION WELLS TO RETRIEVE THAT WATER, PUT IT BACK INTO THE SAME PIPELINE AND MOVE IT RIGHT BACK DOWN TO THE COLORADO RIVER AQUEDUCT.

IN ADDITION, THERE WOULD BE NEW PUMPING PLANTS LOCATED DOWN HERE IN ORDER TO PUMP THE WATER UP TO THE SPREADING BASINS.

THOSE ARE THE FACILITIES THAT ARE NEEDED TO FACILITATE THE OPERATION OF THE PROGRAM.

AS PART OF THIS DETAILED ENVIRONMENTAL PROCESS, AN ANALYSIS HAS BEEN DONE TO A NUMBER OF CATEGORIES, SUCH THINGS AS WATER QUALITY, GROUND WATER, HYDROLOGY, BIOLOGY, CULTURAL, PALEOL, ALL OF THOSE ARE DISCUSSED IN THE ENVIRONMENTAL DOCUMENT ITSELF.

I'M GOING TO DRAW YOUR ATTENTION TO A FEW OF THEM THAT HAVE BEEN BROUGHT UP AS AREAS OF CONCERN THAT NEED TO BE DISCUSSED IN THE MEETING TODAY, AND THAT HAS TO BE THE HYDROLOGY, WATER QUALITY ONES. ALSO, A LITTLE BIT ABOUT THE AIR QUALITY AND THE PALEOL-TYPE RESOURCES -- BONES.

FIRST, THE HYDROLOGY. A NUMBER OF ANALYSES HAS BEEN DONE INSIDE THE ENVIRONMENTAL DOCUMENT. WE BEGAN WITH NINE DIFFERENT OPERATIONAL SCENARIOS TO SEE HOW THIS

GROUNDWATER BASIN WOULD REACT, PUTTING WATER IN AND EXTRACTING WATER BACK OUT.

WHAT WE FOUND IS IF YOU PUT IN ABOUT A MILLION-ACRE FEET INTO THE GROUNDWATER BASIN, INTO THE SPREADING BASINS, YOU END UP WITH ABOUT A 180-FOOT RISE IN THE GROUNDWATER BASIN, BUT IF YOU LEAVE THAT WATER STORED THERE, THE WATER DOES STAY IN THIS AREA. IT DOES START TO FLATTEN OUT, AS YOU CAN SEE.

WHEN YOU EXTRACT THIS WATER LATER, WHAT YOU WILL FIND IS YOU FIND YOURSELF WITH ABOUT A 180 TO 660-FOOT HOL CREATED WHEN YOU START TO EXTRACT THE WATER BACK OUT. THE PARAMETERS ARE DISCUSSED -- THESE ITEMS ARE DISCUSSED IN A LOT MORE DETAIL IN THE ENVIRONMENTAL DOCUMENT ITSELF.

YOU CAN ALSO SEE THAT THE EFFECT OF PUTTING WATE IN AND TAKING WATER OUT IS VERY LOCALIZED. YOU CAN SEE TH THE MOUNTAIN RANGES, MARBLE MOUNTAINS, NEW YORK MOUNTAINS BOUND THE BASINS ON BOTH SIDES, WHICH KEEPS THE EFFECTS VE LOCALIZED INTO THE FENNER GAP ITSELF.

DOWN ON THE BRISTOL DRY LAKE BED QUITE A BIT OF ANALYSIS WAS DONE ON THAT TO SEE WHAT THE EFFECTS WILL BE PUTTING WATER IN, EXTRACTING WATER OUT.

YOU CAN SEE FROM THIS, FACILITY, IT'S ABOUT 12 INCHES IN EFFECT ON THE GROUNDWATER BASIN OF THE BRISTOL LAKE BED OVER THE 50-YEAR PERIOD OF LIFE.

AT THE BEGINNING, YOU'RE LOOKING AT HAVING TO

RAISE THE GROUND LEVEL OF THE WATER BASIN ABOUT 12 INCHES, AND TOWARDS THE END, LOOKING DOWN, WHERE IT'S GOING TO BE COMING BACK DOWN TOWARDS EQUILIBRIUM AFTER THE PROGRAM.

ANOTHER MAJOR ISSUE THAT WE WANTED TO ADDRESS IN THE ENVIRONMENTAL DOCUMENT WAS WHAT HAPPENS TO THE WATER QUALITY OF THE BASIN WHEN YOU'RE PUTTING WATER IN.

WHEN YOU'RE STORING COLORADO RIVER WATER IN THE GROUNDWATER BASIN EXTRACTING WATER OUT, WHAT'S GOING ON BETWEEN THE FRESH WATER AND THE SALINE WATER DOWN AT THE DRY LAKE BEDS?

AGAIN, IT'S -- BASED ON THE ANALYSIS THAT WAS DONE, WHAT WE FOUND IS YOU'RE GOING TO SEE ABOUT A MAXIMUM OF TWO THOUSAND FOOT MOVE OF THAT SALINE INTERFACE BETWEEN WHERE IT IS, HISTORICALLY, AND WHERE WOULD IT BE THROUGHOUT THE OPERATION OF THIS PROGRAM.

VERY LITTLE MOVEMENT OF THE SALINE INTERFACE. SO IN OTHER WORDS, THE SALINE INTERFACE IS GOING TO BE IN ONE LOCATION, AND THEN IT'S GOING TO MOVE BACK TOWARDS THE DRY LAKE BED WHEN WE HAVE WATER STORED IN THE PROGRAM.
THAT GIVES YOU AN IDEA OF ABOUT THE WATER QUALITY AND THE HYDROLOGY.

AGAIN, THERE'S A NUMBER OF SCENARIOS DISCUSSED IN THE ENVIRONMENTAL DOCUMENT. I DIDN'T WANT TO GO INTO DETAIL ON EACH ONE. IF YOU'D LIKE TO, IT'S IN THERE. WE CAN GO THROUGH THEM ALL AT A LATER TIME.

ONE OF THE OTHER ISSUES MOST EVERYONE'S CONCERN
ABOUT WITH THE GROUNDWATER BASIN, PUTTING WATER IN,
EXTRACTING IT OUT, IS WHAT'S GOING TO HAPPEN WITH THE GRO
SURFACE ITSELF.

AS YOU SEE IN SOME AREAS, SUCH AS IN THE CENTRA
VALLEY, THERE'S 30 TO 60 FOOT OF GROUND SUBSIDENCE DUE TO
OVER-PUMPING OF THE GROUNDWATER BASIN. IT'S VERY IMPORTA
THAT WE LOOKED AT THAT, TRIED TO DO AN IN-DEPTH ANALYSIS
WHEN WE PUT WATER IN, TAKE WATER OUT.

WHAT YOU FIND IS YOU FIND A LOCALIZED EFFECT
COULD HAPPEN. UNDER THE MAXIMUM OPERATION SCENARIO OF
PUTTING IN A MILLION, TAKING OUT TWO-MILLION-ACRE FEET, WE
ENDED UP ABOUT A FOOT AND A HALF SUBSIDENCE SPREAD THREE
MILES WIDE BY SIX MILES LONG. AGAIN, VERY LOCALIZED
DIRECTLY ONTO THE CADIZ PROPERTY ITSELF.

NOW, YOU DO ALL THE MODELING ON THE GROUNDWATER
BASIN, YOU LOOK AT ALL THE ISSUES, SUCH AS HYDROLOGY, WATE
QUALITY AND THE GROUND SURFACE, YOU GOT TO FIGURE OUT
WHETHER THE ANALYSIS IS GOING TO PROVE UP TO MAKE SURE THA
THAT WAS AN INSIGNIFICANT EFFECT OR IS IT GOING TO REACT
DIFFERENTLY THAN WE THOUGHT.

THE WAY YOU ALWAYS ENSURE THAT IS YOU DEVELOP A
GROUNDWATER MONITORING PLAN, GROUNDWATER MANAGEMENT PLAN T
LOOK AT THESE ELEMENTS, KEEP TRACK OF THESE THINGS OVER TI
AND HAVE SAFEGUARDS BUILT INTO IT.

THOSE ARE THE THINGS THAT IT'S GOING TO BE LOOKING AT, GOING TO BE LOOKING AT REGULATING THE OPERATION OF THE WATER. WELL, AND IF WE START TO SEE AN EFFECT, WE ARE GOING TO STOP PUTTING WATER IN OR STOP TAKING WATER OUT. THAT'S BASICALLY HOW IT WORKS.

WHAT CHARACTERISTICS ARE GOING TO BE MONITORED INCLUDE CHANGES IN THE GROUNDWATER QUALITY. IF WE START TO SEE ANYTHING ON THE SALINE INTERFACES BEYOND WHAT WE BELIEVE IS GOING TO HAPPEN, WE'RE GOING TO CHANGE THE OPERATIONS, FLUCTUATIONS IN THE GROUNDWATER DURING OPERATIONS.

IN OTHER WORDS, IF IT COMES UP TOO HIGH, WE'RE GOING TO QUIT PUTTING WATER IN, AND THEN ALSO MOVEMENT OF THE BRINE INTERFACE AND CHANGES OF THE GROUND SURFACE ELEVATION SUBSIDENCE, WE'RE GOING TO STOP OUR OPERATIONS ON THAT.

ALSO, THESE ARE ALL LAID OUT GENERALLY HERE, BUT BEFORE THE FINAL ENVIRONMENTAL DOCUMENTS ARE DONE, WE'LL HAVE THE SPECIFICATIONS WORKED OUT, HOW EACH OF THESE ITEMS WILL BE EVALUATED, WHAT THE FAMILIAR ISSUES WILL BE.

AS I MENTIONED, THERE'S A FEW OTHER CATEGORIES I WANT TO TALK ABOUT THAT AFTER WE APPLIED OUR MITIGATION MEASURES THEY WERE STILL SIGNIFICANT; IN OTHER WORDS, WHAT HAPPENS IS THERE'S SOME ISSUES THAT WE CAN'T MITIGATE FOR DURING THE PROJECT.

THOSE ITEMS OUT OF THIS LIST BASICALLY GET DOWN TO

THREE THINGS: PALEOL RESOURCES, AIR QUALITY, AND HAZARDS AND HAZARDOUS MATERIALS. WHAT THINGS ARE INVOLVED, FOR INSTANCE, ON PALEOL RESOURCES, AROUND THE DRY LAKE BEDS THERE'S A LOT OF FOSSILS.

ANIMALS OVER HISTORY HAVE -- USED TO GO TO THE I LAKE BEDS FOR WATER, OTHER ITEMS, THEN DIED DOWN THERE. WE'RE GOING TO ENVISION RUNNING INTO SOME FOSSILS WHILE WE ARE PUTTING IN THE PIPELINE. WE ARE GOING TO TRY TO MONITOR, TRY TO DOCUMENT WHAT WE RUN ACROSS AND TAKE IN TH INFORMATION, THAT WE IMPROVE THE KNOWLEDGE ABOUT WHAT HAPPENED IN THIS AREA.

AIR QUALITY IS ANOTHER ISSUE THAT REMAINS SIGNIFICANT AFTER MITIGATION. BASICALLY WHAT THAT GETS DO TO IS DURING CONSTRUCTION WE'LL HAVE DUST IMPACTS. THE EQUIPMENT IS GOING TO CREATE DUST BECAUSE THERE IS ALREADY DUST IN THESE AREAS. ANY ADDITIONAL DUST CREATED IS STILL CONSIDERED SIGNIFICANT.

WE HAVE MITIGATION MEASURES IN THE DOCUMENTS, SU AS WATERING TO KEEP THE DUST DOWN, THINGS LIKE THAT, CONTR OF EMISSIONS FROM THE VEHICLES, BUT ANY NEW EMISSIONS IN T AREA IS STILL CONSIDERED SIGNIFICANT.

THE LAST ONE IS HAZARDS AND HAZARDOUS MATERIALS. A LOT OF YOU KNOW, THE AREA HAS BEEN USED FOR TRAINING, MILITARY TRAINING. WE'RE GOING TO BE DOING SOME ANALYSIS BEFORE THE CONSTRUCTION EQUIPMENT GETS IN THERE TO ENSURE

THERE ARE NOT UNEXPLODED ORDINANCES, BUT THERE'S NO GUARANTEE WE'RE GOING TO GET ALL OF IT.

SOME OF OUR CONSTRUCTION EQUIPMENT MIGHT HIT SOME UNEXPLODED ORDINANCES, ESPECIALLY FOR THE GUY ON THE TOP OF THE BACKHOE. THOSE ARE THE THREE MAIN ONES WE WILL HAVE. WE DON'T BELIEVE WE CAN MITIGATE BELOW THE LEVEL OF SIGNIFICANCE.

A LITTLE BIT ABOUT THE SCHEDULE. SYL MENTIONED -- STARTED OFF WITH IT. BACK IN THE BEGINNING, BACK IN FEBRUARY OR MARCH, WE HAD SOME SCOPING MEETINGS, DIDN'T HAVE A LOT OF ANSWERS FOR THOSE QUESTIONS BECAUSE WE HADN'T STARTED DOING THE ANALYSIS. RIGHT NOW WE DO HAVE A LOT OF ANSWERS. WE CAN GO INTO MORE DETAIL ABOUT THE FACILITIES, WHAT THE IMPACTS ARE, WHAT THE MITIGATIONS ARE AT THIS TIME. BUT WE HAD SCOPING MEETINGS. WE WERE HERE. WE WENT DOWN TO 29 PALMS, WHERE WE'RE GOING TO BE GOING TO TONIGHT FOR ANOTHER SCOPING MEETING LIKE THIS, AND WE'RE GOING OUT TO NEEDLES TO HAVE A SCOPING MEETING OUT IN NEEDLES LIKE WE DID BACK IN FEBRUARY, MARCH.

WHAT THAT ALLOWED US TO DO IS SCOPE THE DOCUMENT, WHAT YOU THOUGHT WAS SIGNIFICANT, WHAT ISSUES NEEDED TO BE ADDRESSED AND ALLOWED US TO ADDRESS THOSE IN THE ENVIRONMENTAL DOCUMENT.

WHERE WE ARE NOW IS THE DRAFT ENVIRONMENTAL DOCUMENT ITSELF, DRAFT E.I.R./E.I.S. IT'S A JOINT DOCUMENT

BETWEEN METROPOLITAN WATER DISTRICT, WHICH IS A STATE PUBL AGENCY, AND B.L.M., WHICH IS A FEDERAL AGENCY.

THAT'S OUT ON THE STREET FOR PUBLIC REVIEW. AS SYL MENTIONED, IT'S GOING TO BE OUT ON THE STREET IN FEBRUARY, ABOUT THE 22ND, 23RD --

MS. SALENIUS: 23RD.

MR. REED: 23RD. PLEASE SUPPLY YOUR COMMENTS, SUPPLY WRITTEN COMMENTS ALL THE WAY UP TO THE 23RD. THOSE WILL BE ADDRESSED. IN OTHER WORDS, WE WILL P TOGETHER RESPONSES FOR EACH COMMENT THAT YOU SUPPLY. YOU CAN SUPPLY COMMENTS HERE OR PUT THEM IN A WRITTEN LETTER, SEND THEM TO US. EITHER WAY, YOU WILL SEE A FORMAL RESPON TO YOUR COMMENTS.

YOU WILL ALSO RECEIVE A DOCUMENT THAT HAS THOSE RESPONSES IN IT. WHAT WE'RE LOOKING AT, ASSUMING CERTIFICATION OF THE PROJECT, IS PROBABLY MOVING INTO CONSTRUCTION SOMETIME IN LATE SPRING, EARLY SUMMER, FULL OPERATIONS OF THE PROGRAM, ASSUMING METROPOLITAN MOVES FORWARD WITH IT, WOULD BE AT ABOUT THE YEAR 2001, SUMMER O 2001.

WITH THAT BEING SAID, I'LL TURN IT BACK OVER TO SYL.

MS. SALENIUS: OKAY. WE DID HAVE SOME COMMENT CARDS ON THE TABLE. I DON'T KNOW WHETHER ANY OF Y FILLED THOSE OUT. IS THERE ANYONE WHO DOES WISH TO SPEAK

ABOUT THE PROJECT?

(NO RESPONSE.)

MS. SALENIUS: ALL RIGHT. WHAT I WOULD LIKE TO SAY IS THAT YOU ARE CERTAINLY WELCOME TO TAKE A COMMENT CARD. THE COMMENT CARDS, THERE'S TWO VERSIONS OF THEM. ACTUALLY, SOME WITH STAMPS IF YOU'RE GOING TO MAIL THEM BACK AS A SHORT COMMENT. SOME NOT STAMPED. IF YOU JUST WANT TO TAKE ONE TO GET THE ADDRESS, THEN PLEASE TAKE ONE OF THE UNSTAMPED ONES SO WE DON'T WASTE OUR STAMPS.

MR. REED: YOU CAN PEEL THEM OFF AND REUSE THEM.

MS. SALENIUS: THEY'RE THE PEEL AND STICK KIND.

I DO WANT TO THANK YOU FOR ATTENDING HERE TODAY. I DON'T KNOW WHETHER YOU HAVE ANY QUESTIONS THAT WE MIGHT BE ABLE TO ANSWER. THAT'S ANOTHER OPPORTUNITY THAT YOU HAVE UNLESS DIRK DID SUCH A STELLAR JOB EXPLAINING THINGS, YOU DON'T HAVE ANY QUESTIONS.

YES, SIR.

MR. DOLESHAL: I'VE ALWAYS BEEN INTERESTED. THAT INTERFACE BETWEEN THE BRINE AND THE FRESH WATER, IS THAT A PHYSICAL BARRIER?

MR. REED: IT'S A GRADIENT, GOES FROM WHAT THE T.D.S., THE SALT IN THE FRESH WATER, UP TO A LOT HIGHER SALT IN THE DRY LAKE BEDS. WHAT WE SHOW THERE IS A 1000

M1-1

MILLIGRAM LINE. THAT'S WHAT WE'RE GOING TO BE WATCHING I
THAT GRADIENT. THAT WILL TELL YOU HOW MILLIGRAMS.

YOU DO SEE THE FRESH WATER PUSHING THE SALT WAT
DOWN. THAT'S WHAT HAPPENS. THE FRESH WATER KEEPS THE SA
WATER PUSHED DOWN TO THE DRY LAKE BEDS SIMILAR TO THE OCE
ENVIRONMENT. FRESH WATER INLAND KEEPS THE SALT WATER JUS
BARELY ON COAST.

MR. DOLESHAL: IT'S ACTUALLY THE WATER?

MR. REED: PRESSURE PUSHING IT AGAINST EACH
OTHER.

MR. DOLESHAL: NOT A PHYSICAL UNDERGROUND
ROCK BARRIER?

M1-1 MR. REED: NO. MATTER OF FACT, IT'S MORE C
A GRADIENT BETWEEN THE TWO. YOU CAN DEFINITELY SEE THAT
GRADIENT, THAT GRADIENT LINE THAT WE WILL SHOW THERE, THAT
1000 MILLIGRAMS THAT'S WHERE THE THOUSAND MILLIGRAMS PER
MILLILITER WOULD BE. 300 UP IN HERE, MILLIGRAMS, PER LITE
A LOT HIGHER.

MS. SALENIUS: SIR, COULD WE HAVE YOUR NAME

MR. DOLESHAL: YES, DENNIS DOLESHAL,
D-O-L-E-S-H-A-L.

MS. SALENIUS: OKAY. AND YOU SIGNED IN SO
HAVE YOU ON THE SIGN-IN SHEET.

WITH THAT, I'D CERTAINLY LIKE TO THANK YOU FOR
COMING TODAY. IT'S A LONG DRIVE FOR SOME OF YOU, AND WE

CERTAINLY APPRECIATE THAT FACT THAT YOU'RE CONTRIBUTING TO THIS PROCESS. AND WE LOOK FORWARD TO ANSWERING QUESTIONS THAT PEOPLE HAVE IN THE FINAL ENVIRONMENTAL DOCUMENT.

THANK YOU VERY MUCH.

MR. RIDDLE: I THINK HE ALREADY ANSWERED ANY OF THE QUESTIONS I HAD FROM THE LAST MEETING. I'M DON RIDDLE, RETIRED SCHOOL BUS DRIVER FROM AMBOY.

M1-2

MS. SALENIUS: OKAY.

MR. REED: WHY DON'T WE CLOSE IT ALL UP.

MS. SALENIUS: YEAH. THANK YOU. I GUESS WE'LL CLOSE THIS PORTION OF THE PUBLIC HEARING, PROCEED ON TO 29 PALMS THIS EVENING AND NEEDLES TOMORROW NIGHT.

THANK YOU.

(THE PUBLIC HEARING WAS CONCLUDED AT 11:43 A.M.)

CERTIFICATE OF REPORTER

'ATE OF ARIZONA)
)
OUNTY OF MOHAVE)

I, KAREN KOVACS, C.C.R., R.P.R. DO HEREBY CERTIFY THAT I TOOK DOWN IN SHORTHAND (STENOTYPE) ALL OF THE PROCEEDINGS HAD IN THE ABOVE-ENTITLED MATTER AT THE TIME AND PLACE INDICATED, AND THAT THEREAFTER SAID SHORTHAND NOTES WERE TRANSCRIBED INTO TYPEWRITING AT AND UNDER MY DIRECTION AND SUPERVISION, AND THE FOREGOING TRANSCRIPT CONSTITUTES A FULL, TRUE AND ACCURATE RECORD OF THE PROCEEDINGS HAD.

IN WITNESS WHEREOF, I HAVE HEREUNTO AFFIXED MY HAND THE 30TH DAY OF DECEMBER, 1999.

Karen Kovacs

KAREN KOVACS, C.C.R., R.P.R.

COPY

The December 15, 1999 Public Scoping Meeting at the City of Twentynine Palms City Hall consisted of formal presentations by Metropolitan and P&D Environmental staff, followed by public comment. The transcript for this meeting includes both the formal presentations and the public comments. The transcript of the formal presentation is on pages 1 through 23 of the transcript. The part of the transcript for public comments is on pages 23 through 39 of the transcript. There are also intermittent public comments on pages 39 through 61 of the transcript.

COPY

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM

M2

PUBLIC SCOPING MEETING

WEDNESDAY, DECEMBER 15, 1999

AT TWENTYNINE PALMS CITY HALL

6136 ADOBE ROAD, TWENTYNINE PALMS, CALIFORNIA

AT 7:06 P.M.

REPORTED BY: KAREN KOVACS, C.C.R., R.P.R.
CALIFORNIA C.C.R. #6485/NEVADA C.C.R. #550

MS. SALENIUS: WE'D LIKE TO GET STARTED. I'D LIKE TO WELCOME YOU ALL TO THIS PUBLIC HEARING ON TH ADEQUACY OF THE ENVIRONMENTAL IMPACT REPORT, ENVIRONMENT IMPACT STATEMENT ON THE CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM.

AND IF YOU DIDN'T COME FOR THAT, YOU'RE AT THE WRONG MEETING.

I'D LIKE TO INTRODUCE A FEW PEOPLE. I'M SYLVI SALENIUS. I'M WITH P & D ENVIRONMENTAL, AND WE WERE RESPONSIBLE FOR THE COMPILATION OF THE ENVIRONMENTAL DOCUMENT.

DIRK REED IS THE PROGRAM MANAGER FOR METROPOLITAN, AND DIRK WILL BE MAKING A PRESENTATION ON PROJECT AND THE FINDINGS OF THE ENVIRONMENTAL DOCUMENT.

WE ALSO HAVE JACK SAFELY HERE. JACK IS WITH METROPOLITAN ALSO AND WAS ASSISTING DIRK ON THE ENVIRONMENTAL DOCUMENTATION.

KATHY KUNYSZ FROM METROPOLITAN IS HERE. KATHY A SPECIALIST IN ENVIRONMENTAL ISSUES AND HAS WORKED VERY EXTENSIVELY ON BIOLOGICAL ISSUES AND CULTURAL-RESOURCE RELATED ISSUES.

WE ALSO HAVE MOLLY BRADY HERE FROM THE B.L.M., NEEDLES OFFICE, AND SHE'S HERE REPRESENTING THAT ORGANIZATION. B.L.M. IS THE CO-LEAD AGENCY FOR THE ENVIRONMENTAL DOCUMENT, AND THE B.L.M. WILL BE DECIDING A

TO WHETHER TO ALLOW THE PROJECT TO UTILIZE B.L.M. LAND.

WE ALSO HAVE JIM WILLIAMS HERE FROM THE RIVERSIDE OFFICE, AND JIM IS THE DESIGNEE FROM THE B.L.M. TO RECEIVE WRITTEN COMMENTS FROM FOLKS THAT ARE COMMENTING ON THE DOCUMENT.

ALSO JACK SAFELY, WHOM YOU WERE INTRODUCED TO EARLIER, HE WILL BE RECEIVING WRITTEN COMMENTS AS WELL, AND IF YOU NEED THE MAILING ADDRESSES FOR THE RECEIPT OF COMMENTS, THERE ARE SOME COMMENT CARDS ON THE TABLE THAT -- KEN ASHFORD IS ALSO FROM THE METROPOLITAN. HE'S HERE MANNING THE SIGN-IN DESK.

THERE ARE COMMENT CARDS. THESE COMMENTS CARDS -- WE'RE USING THEM FOR TWO PURPOSES: ONE PURPOSE IS TO HAVE A RECORD OF WHO WISHES TO SPEAK THIS EVENING, SO IF YOU WOULD LIKE TO SPEAK THIS EVENING, WE WOULD REQUEST THAT YOU GET ONE OF THE COMMENT CARDS AND FILL IN THE BLANKS ON THE CARD AND CHECK THE BOX THAT INDICATES THAT YOU'D LIKE TO SPEAK, AND THEN GIVE YOUR CARDS BACK TO KEN.

IF YOU'D LIKE TO TAKE A COMMENT CARD AND MAIL IT BACK, THERE ARE SOME THERE WITH STAMPS ON THEM SO YOU DON'T HAVE TO PAY FOR POSTAGE.

AND IF YOU JUST WANT A COMMENT CARD TO GET THE MAIL-BACK ADDRESS FOR SENDING IN OTHER COMMENTS YOU MIGHT HAVE, LIKE A LETTER OR OTHER DOCUMENTATION, YOU CAN JUST TAKE A CARD BECAUSE IT HAS ALL THAT INFORMATION ON IT.

THE PURPOSE OF THIS MEETING TONIGHT IS TO PROV
YOU WITH AN OPPORTUNITY TO COMMENT ON THE ENVIRONMENTAL
DOCUMENTS THAT WERE RELEASED IN NOVEMBER.

THESE DOCUMENTS ARE GOING TO BE CIRCULATING NO
FOR A PERIOD OF 90 DAYS, AND THE COMMENT PERIOD WILL EXT
THROUGH FEBRUARY 23RD OF 2000. THE COVER LETTER THAT'S
THE ENVIRONMENTAL DOCUMENT SAYS FEBRUARY 23RD, 1999.

THERE'S A Y2K PROBLEM THERE. IT'S SUPPOSED TO
2000. THAT'S THE FORMAL END OF THE PERIOD, SO IF YOU'RE
SENDING ANYTHING IN, PLEASE MAKE AN EFFORT TO GET IT IN
DURING THAT TIME PERIOD.

ANY COMMENTS THAT WE RECEIVE ORALLY THIS EVENI
OR IN WRITING WILL BE INCLUDED IN THE FINAL ENVIRONMENTA
DOCUMENT. AND IN THAT DOCUMENT WE'LL ALSO PROVIDE RESPO
TO ANY QUESTIONS OR CONCERNS THAT HAVE BEEN IDENTIFIED.

THE FINAL ENVIRONMENTAL IMPACT REPORT, IMPACT
STATEMENT IS EXPECTED TO BE RELEASED SOMETIME IN MARCH.
THEN METROPOLITAN'S BOARD OF DIRECTORS AND THE OFFICIALS
THE B.L.M. WILL USE THE INFORMATION IN THE DRAFT REPORT A
THE FINAL REPORT AS THEIR BACKGROUND INFORMATION ON THE
ENVIRONMENTAL EFFECTS OF THE PROJECT IN ORDER TO MAKE THE
DECISIONS THAT THEY HAVE TO MAKE.

THEY HAVEN'T DECIDED WHETHER TO PROCEED ON THIS
PROJECT YET AT ALL. THEY'RE TAKING THIS INFORMATION AND
THEN THEY'RE GOING TO USE IT WHEN THEY CONSIDER WHETHER T

PROCEED WITH THE PROJECT.

THE B.L.M., SIMILARLY, WILL BE USING THIS INFORMATION TO DETERMINE WHETHER THEY WISH TO ALLOW METROPOLITAN TO USE THE LAND THAT THEY HAVE CONTROL OVER.

OUR AGENDA FOR TONIGHT WILL BE AS FOLLOWS: DIRK REED IS GOING TO MAKE A PRESENTATION ABOUT THE PROJECT, ITS OBJECTIVES, AND SOME OF THE INFORMATION DURING THE ENVIRONMENTAL ANALYSIS THAT WE DISCOVERED IN TERMS OF POTENTIAL ENVIRONMENTAL EFFECTS OF THE PROJECT PARTICULARLY ON WATER QUALITY ISSUES AND SOME OF THE OTHER KEY CONCERNS THAT AROSE. PRIMARILY, THE WATER QUALITY ISSUES.

AFTER THE PRESENTATION WE'D LIKE TO START TAKING YOUR COMMENTS. AND AGAIN, IF YOU WISH TO SPEAK, PLEASE GET A CARD FROM KEN AND FILL IT OUT, AND THEN WHEN WE'RE READY, WE'LL READ OFF THE NAMES IN THE ORDER THAT WE RECEIVED THE CARDS.

AFTER WE GET ALL OF YOUR COMMENTS WE'LL TAKE A SHORT BREAK, AND IF THERE ARE QUESTIONS THAT COME UP DURING THE COMMENT PERIOD, I'M GOING TO BE WRITING THOSE DOWN AND WHEN WE COME BACK AFTER A SHORT BREAK, WE'LL TRY TO ANSWER THOSE QUESTIONS THAT WE CAN AT THAT POINT IN TIME.

I'D ALSO LIKE TO POINT OUT THAT, FOR YOUR CONVENIENCE, THERE ARE COPIES OF THE ENVIRONMENTAL DOCUMENTS. IT'S A FAIRLY THICK REPORT -- IT'S ABOUT TWO AND A HALF, THREE INCHES THICK -- THAT ARE AVAILABLE AT THE

LOCAL LIBRARIES IN NEEDLES, TWENTYNINE PALMS, SAN BERNAR
AND BARSTOW.

SO IF YOU DON'T WANT TO GO AND BUY ONE OF THES
THINGS -- AND THEY'RE EXPENSIVE IF YOU BUY THE WHOLE
PACKAGE -- IT'S AVAILABLE IN THOSE LIBRARIES FOR YOU TO
AT. IT'S ALSO AVAILABLE ON THE B.L.M.'S WEBSITE, IF YOU
WANT TO TRY TO READ IT ON YOUR COMPUTER.

ALSO, METROPOLITAN HAS COPIES THAT ARE AVAILAB
AND THE B.L.M. OFFICE IN RIVERSIDE HAS COPIES.

AT THIS POINT, I'D LIKE TO TURN THE PRESENTATI
OVER TO DIRK TO GIVE YOU SOME INFORMATION ABOUT THE
PROJECT.

MR. REED: THANKS, SYL.

AGAIN, MY NAME'S DIRK REED. I'M THE PROJECT
MANAGER FOR THE CADIZ DRY-WATER STORAGE AND GROUNDWATER
SUPPLY PROGRAM.

WHAT I'M GOING TO DO TONIGHT IS BASICALLY GIVE
A BRIEF OVERVIEW OF THE PROGRAM AND THEN TURN IT BACK OV
TO SYL FOR THE QUESTIONS AND ANSWERS AND THE TAKING OF T
PUBLIC INPUT PART OF THE PROJECT ITSELF.

THESE PUBLIC MEETINGS -- AS SYL MENTIONED TO Y
THESE PUBLIC MEETINGS ARE BEING HELD TO OBTAIN YOUR
COMMENTS. THIS IS AN IMPORTANT PART OF THE PROCESS FOR
TO GIVE SOME INPUT INTO THE ENVIRONMENTAL DOCUMENTATION
MAKE SURE THAT THE DOCUMENT DISCUSSES EVERYTHING THAT YO

THINK ARE IMPORTANT AND EVALUATES THEM.

WHAT YOU CAN DO IS EITHER, LIKE SYL MENTIONED, AGAIN, YOU CAN SPEAK HERE TONIGHT, YOU CAN FILL OUT THE COMMENT CARDS AND MAIL THEM IN, OR YOU CAN WRITE US A LETTER, BUT ONE THING I WANT TO MAKE SURE, YOU KNOW, IS YOUR COMMENTS WILL BE RESPONDED TO IN WRITING PRIOR TO ANY FINAL ACTION ON THIS PROJECT AT ALL.

THE FIRST THING I'D LIKE TO DO IS JUST GO THROUGH A LITTLE BIT ABOUT WHO METROPOLITAN WATER DISTRICT IS.

THE METROPOLITAN WATER DISTRICT WAS CREATED IN 1928 UNDER AN ENABLING ACT OF THE CALIFORNIA LEGISLATURE. METROPOLITAN WATER DISTRICT SUPPLIES SUPPLEMENTAL WATER SUPPLIES TO THE SOUTHERN CALIFORNIA REGION, COVERING VENTURA, LOS ANGELES, ORANGE, SAN DIEGO, RIVERSIDE, AND SAN BERNARDINO COUNTIES.

METROPOLITAN SUPPLIES ABOUT 60 PERCENT OF THE WATER USED IN THAT AREA. IN PARTICULAR, METROPOLITAN SUPPLIES TWO-THIRDS OF THE WATER USED IN SAN BERNARDINO COUNTY. BY 2020, METROPOLITAN WILL BE SUPPLYING APPROXIMATELY 300,000-ACRE FEET A YEAR.

NOW, A LITTLE BIT ABOUT THE PROJECT ITSELF AND THE AREA WE'RE DEALING WITH. I THINK MOST EVERYBODY'S FAMILIAR WITH THE DESERT GROUNDWATER BASINS, BUT FOR THE MOST PART, THE DESERT GROUNDWATER BASINS CAN BE BROKEN INTO TWO GENERAL AREAS: THE KIND THAT NATURALLY DRAIN TOWARDS, LIKE, THE

COLORADO RIVER, AND THE KIND THAT DRAIN TOWARDS THE DRY BEDS AND WILL EVAPORATE OFF AND THE GROUNDWATER DRAINS TOWARDS THE DRY LAKE BEDS AND EVAPORATES OFF.

IN PARTICULAR, LIKE PIUTE AND CHEMEHUEVI DRAIN TOWARDS THE COLORADO RIVER UNCONTROLLED AND DRAINS DOWN TOWARDS THE COLORADO RIVER.

THE ONES WE'RE GOING TO TALK ABOUT TODAY, THE FENNER, BRISTOL, AND CADIZ DRAIN TOWARDS THESE DRY LAKE AND EVAPORATES AWAY. YOU CAN TELL THE DIFFERENCE IN THE LAKE BEDS IF YOU EVER GO OUT AND LOOK AT THEM. THERE'S DRY LAKE BEDS THAT HAVE A WHITE CRUST ON THEM, VERY SALT THAT'S DUE TO THE GROUNDWATER EVAPORATION. THE WATER MO TOWARDS THESE DRY LAKE BEDS -- IT'S ABOUT FIVE FEET BELO SURFACE -- AND EVAPORATES AWAY, LEAVING THE SALTS ON THE SURFACE.

OTHER DRY LAKE BEDS IN THE DESERT, SUCH AS THE HAYFIELD DRY LAKE BED ARE TOPOGRAPHIC DEPRESSIONS. IN OT WORDS, THAT'S WHERE THE SURFACE WATER RUNS TO AND THEN I INFILTRATES THE GROUNDWATER BASINS. HAYFIELD VALLEY, FO INSTANCE, THE GROUNDWATER BASIN'S ABOUT 600 FEET BELOW SURFACE. IT'S A BIG DIFFERENCE IN THE TYPE OF GROUND WA BASINS.

THERE'S A LOT OF DIFFERENT KINDS OF GROUNDWATE BASINS OUT THERE AND, AS YOU CAN SEE ON THIS BOARD, THE GENERAL BREAK BETWEEN THE GROUNDWATER BASINS THEMSELVES.

FENNER BASIN -- A LITTLE BIT ABOUT THE FENNER BASIN.

THE FENNER BASIN, FENNER VALLEY, COVERS ABOUT 1300 SQUARE MILES. IT RISES IN ELEVATION TO APPROXIMATELY 7,500 FEET. THERE'S SNOW ON THOSE MOUNTAINS. IT'S SURROUNDED BY THE PROVIDENCE MOUNTAINS, NEW YORK MOUNTAINS, AND THE SHEEPHOLE. THE BASIN HAS A NATURAL RECHARGE FOR APPROXIMATELY 30,000-ACRE FEET PER YEAR. THAT GROUNDWATER BASIN DRAINS FROM THE UPPER ELEVATIONS, THROUGH THE FENNER GAP, TOWARDS THE BRISTOL AND CADIZ DRY LAKE BEDS WHERE THE WATER EVAPORATES OFF.

THIS PROGRAM -- THE PROGRAM WE'RE HERE TO TALK TO YOU A LITTLE BIT THIS EVENING -- BASICALLY HAS THREE COMPONENTS TO IT. THAT IS, ONE COMPONENT IS GOING TO ALLOW US TO TAKE THE WET-YEAR WATER -- RAIN WATER THAT'S AVAILABLE WHEN IT RAINS A LOT IN THE COLORADO RIVER AREA -- BRING IT IN, AND STORE IT IN A GROUNDWATER BASIN.

THE SECOND COMPONENT IS GOING TO BE ABLE TO EXTRACT THAT GROUNDWATER, THAT WATER WE STORED, TAKE IT BACK OUT OF THE GROUNDWATER BASIN, MOVE IT BACK TO THE COLORADO RIVER AQUEDUCT AND BACK INTO METROPOLITAN'S SERVICE AREA.

THE THIRD COMPONENT IS A TRANSFER OF SOME OF THE NATIVE GROUNDWATER, SOME OF THE WATER THAT NATURALLY RECHARGES THE BASIN, MOVES TO THE DRY LAKE BEDS AND EVAPORATES AWAY. TO MAKE THAT -- BRING THAT TOGETHER, WE HAVE TO CONSTRUCT SOME FACILITIES.

THE BASIN, THE FENNER GAP THAT WE ARE TALKING ABOUT PUTTING SOME OF THE FACILITIES IN, IS ABOUT 35 MILES NORTH, NORTHWEST OF THE COLORADO RIVER AQUEDUCT, IRON MOUNTAIN PUMPING PLANT.

WE HAVE TO CONSTRUCT A 35-MILE PIPELINE THAT'S GOING TO BE ABLE TO FLOW ABOUT A HUNDRED-FIFTY-THOUSAND ACR FOOT IN ONE YEAR.

IN ADDITION, WE HAVE TO CONSTRUCT ABOUT 400 ACRES OF SPREADING BASINS. WHAT YOU'RE TALKING ABOUT THERE IS SOME INFILTRATION PONDS SO WE CAN TAKE THE COLORADO RIVER WATER, GET IT INTO THE GROUNDWATER BASIN ITSELF.

IN OTHER WORDS, WE'RE LOOKING AT ABOUT 400 ACRES OF THOSE. TO GET THE WATER OUT OF THE GROUNDWATER BASIN BACK INTO THE PIPELINE AND BACK DOWN TO THE COLORADO RIVER AQUEDUCT, WE NEED ABOUT 30 EXTRACTION WELLS.

ALL THESE FACILITIES UP IN THE FENNER GAP WILL BE LOCATED ON THE CADIZ LAND HOLDINGS. THE PIPELINE IS GOING TO BE CROSSING SOME PRIVATELY-HELD PROPERTY AND B.L.M. PROPERTY, AS SYL MENTIONED AT THE BEGINNING OF THE MEETING.

AS PART OF THE ENVIRONMENTAL PROCESS, WE HAD TO LOOK AT A NUMBER OF CATEGORIES. WE HAD TO EVALUATE A LOT OF DIFFERENT THINGS. SOME OF THESE ITEMS WE ARE ALREADY KNEW ABOUT AND SOME OF THESE ITEMS WERE BROUGHT UP IN OUR PUBLIC SCOPING MEETINGS.

IF YOU REMEMBER, BACK IN FEBRUARY AND MARCH WE HAD

SCOPING MEETINGS OUT HERE IN TWENTYNINE PALMS WHERE THERE WAS SEVERAL ISSUES THAT WERE BROUGHT UP THAT WE NEEDED TO LOOK AT.

WE HAVE EVALUATED THESE ITEMS AS PART OF THE ENVIRONMENTAL DOCUMENTATION PROCESS. AND AGAIN, THAT'S ONE OF THE THINGS YOU NEED TO LOOK AT IN THE ENVIRONMENTAL DOCUMENT TO ENSURE THAT WE DID CAPTURE YOUR COMMENTS CORRECTLY AND THAT WE DID EVALUATE WHAT YOU WERE LOOKING FOR US TO EVALUATE IN THAT DOCUMENT.

SOME OF THE ITEMS ARE -- HAD A LOT OF INTEREST IN BY THE PUBLIC AND SOME OF THEM NOT AS MUCH, SUCH AS PUBLIC SERVICES OUT IN THE FENNER VALLEY. THERE'S NOT AS MANY PUBLIC SERVICES AND UTILITIES OUT THERE.

SOME OF THE THINGS SUCH AS HYDROLOGY AND WATER QUALITY, GEOLOGY, SOILS, AND MINERAL RESOURCES WE HAD LOTS OF INPUT ON, AND I'M GOING TO GO INTO A LITTLE MORE DETAIL ABOUT THAT. WE HAVE EVALUATED A NUMBER OF OPERATIONAL MODELS, A NUMBER OF OPERATIONAL ANALYSES OF THE GROUNDWATER BASIN.

APPROXIMATELY NINE OF THEM, DIFFERENT GROUNDWATER ANALYSES, WERE DONE ON PUTTING WATER INTO THE GROUND WATER BASIN AND EXTRACTING THE WATER OUT.

GO INTO THE WORST CASE OF WHAT THE EFFECTS ON THE GROUNDWATER BASIN WERE BASED ON THIS ANALYSIS.

PEOPLE WANTED TO KNOW WHAT WOULD BE THE MAXIMUM

ELEVATION, HOW FAR IS THAT WATER GOING TO GET UP WHEN WE START PUTTING WATER INTO THIS GROUNDWATER BASIN. AND WE WE FOUND OUT, UNDER THE WORST CASE, WE'RE GOING TO LOOK ABOUT A 180-FOOT MOUND; IN OTHER WORDS, WHEN YOU PUT WAT IN, THE WATER THAT WE'RE PUTTING IN IS GOING TO COME UP ABOUT 180 FEET. IT'S STILL QUITE AWAYS AWAY FROM THE SURFACE, BUT IT'S GOING TO COME UP 180 FEET.

AS YOU MOVE AWAY FROM WHERE WE PUT THE WATER I IT STARTS GETTING BACK CLOSE TO NORMAL, BACK TO WHERE TH ORIGINAL GROUNDWATER IS.

YOU CAN SEE THE CONTOURS HERE. SHOWN ON THIS M IS THE CADIZ LAND HOLDINGS. ALSO SHOWN IS, AS YOU CAN SE THE MARBLE AND SHIP MOUNTAINS THAT CONTROL THE FLANKS OF BASIN ITSELF.

ONE OF THE THINGS THAT ALSO WAS INTERESTING WAS WHAT PEOPLE WANTED TO KNOW MORE ABOUT IS WHAT IS THE EFFE WHEN YOU START TAKING WATER OUT OF THE GROUNDWATER BASIN, NOT JUST THE WATER WE STORED, BUT SOME OF THE INDIGENOUS GROUNDWATER, SOME OF NATIVE GROUNDWATER WHEN IT'S STARTIN TO BE EXTRACTED.

THE ANALYSIS WAS DONE ON THAT ALSO. WHAT WE'RE LOOKING AT IS WHAT THE MAXIMUM DRAW-DOWN, WHAT THE HOLE, WHAT THE EXTRACTION HOLE LOOKS LIKE FROM THE WELLS THAT WE'RE EXTRACTING OUT OF THE GROUNDWATER BASIN.

AND AGAIN, IT'S ABOUT 180 FEET BELOW WHERE IT

WOULD HAVE BEEN, AND WE EXTRACTED TWO-MILLION-ACRE FOOT ON THIS ANALYSIS. ALL THESE OPERATIONAL SCENARIOS ARE IN THE ENVIRONMENTAL DOCUMENT, AND I JUST WANTED TO JUST CAPTURE SOME OF THE MAXIMUM-IMPACT ONES AND SHOW YOU WHAT THAT IS HERE THIS EVENING.

AGAIN, AS YOU MOVE AWAY FROM THE PROJECT AREA, YOU CAN SEE THAT WE'RE ONE FOOT, 20 FEET, ONE FOOT WORSE THAN THE NATIVE GROUNDWATER BY EXTRACTING THIS WATER OUT OF THE AREA.

DOWN HERE BY BRISTOL DRY LAKE WE HAD A NUMBER OF CONCERNS RAISED ABOUT WHAT IS GOING TO BE THE EFFECT ON THE BRISTOL DRY LAKE? ARE WE GOING TO HAVE AN EFFECT ON THE SALT MINING OPERATIONS AND THINGS LIKE THAT?

YOU CAN SEE IT ON THE CONTOUR BOARD, BUT TO GIVE YOU A BETTER IDEA WHAT IT LOOKS LIKE OVER THE PERIOD OF TIME, THESE ARE INCHES ON THIS SIDE, AND YOU CAN SEE WHAT THE EFFECT IS ON THE BRISTOL DRY LAKE. WE'RE TALKING LESS THAN TWELVE INCHES.

AT THE BEGINNING OF THE PROJECT, WHEN WE'RE STORING WATER IN, THEY'RE GOING TO SEE AN ELEVATION RISE IN THE DRY LAKE BED LESS THAN TWELVE INCHES.

TOWARDS THE MIDDLE OF THE PROGRAM WHEN WE'RE STARTING TO TAKE WATER OUT ON THIS OPERATIONAL ANALYSIS, YOU'RE GOING TO SEE ABOUT 12 INCHES OF DROP OF BRISTOL DRY LAKE. OVER TIME, IT'S GOING TO RETURN TO EQUILIBRIUM.

ONE OF THE OTHER ISSUES, IF YOU REMEMBER THE CATEGORIES THAT WAS ON THE ORIGINAL BOARD THAT I STARTE WITH, WAS WATER QUALITY. AND IN ORDER TO SHOW YOU WATE QUALITY, WHAT I WILL TRY TO DO IS JUST SAY WHAT -- IF Y UNDERSTAND THE DRY LAKE BEDS AND THE GROUNDWATER BASIN ITSELF; THAT IS, WHAT'S HAPPENING BETWEEN THE TWO.

THE DRY LAKE BEDS ARE VERY HIGH IN SALINITY, SALTS. THE GROUNDWATER BASIN IS NOT. SO THE BEST WAY T SHOW SOMETHING ON THAT IS TO SHOW WHAT'S HAPPENING ON TH BRINE INTERFACE, THE INTERFACE BETWEEN THE FRESH WATER A THE SALT WATER OVER THE PROJECT.

WHAT WE HAVE IS WE'VE DONE AN ANALYSIS OF THAT ALSO, LOOKING AT THE WORST CASE, TO SEE WHAT HAPPENS TO BRINE INTERFACE.

AS YOU CAN SEE, UNDER MAXIMUM MOVEMENT OF THE BRINE INTERFACE, WE ARE TALKING ABOUT 2,000 FEET; IN OTH WORDS, THE CURRENT LOCATION SHOWN IN BLUE. WHEN WE'RE PUTTING WATER IN, THE BRINE INTERFACE MOVES TOWARDS THE D LAKE BEDS AND THEN OVER THE PROJECT LIFE RETURNS BACK TOWARDS THE BLUE LINE, RETURNS BACK TO EQUILIBRIUM.

YOU CAN ALSO SEE THE LOCATIONS OF THE WELLS, TH SPREADING BASINS, AND THE AREA OF CADIZ LAND HOLDINGS ON THIS MAP, TOO.

SEVERAL PEOPLE WERE ASKING QUESTIONS ABOUT WHAT GOING TO HAPPEN WITH THE SURFACE. SOME PEOPLE ARE FAMILI

WITH THE CENTRAL VALLEY WHERE YOU'RE LOOKING AT 30, 60 FEET OF SUBSIDENCE DUE TO THE GROUNDWATER EXTRACTION UP IN THE CENTRAL VALLEY.

WHAT ARE WE GOING TO HAVE HAPPEN HERE WHEN WE START PUTTING WATER INTO THE GROUNDWATER BASIN, TAKING WATER OUT OF THE GROUNDWATER BASIN? WE'VE DONE A COMPLETE ANALYSIS ON THAT ALSO.

WHAT WE'RE TALKING ABOUT IS WE WILL BE SEEING SOME SUBSIDENCE OUT THERE. ANYTIME YOU START PUTTING WATER IN, TAKING WATER OUT, EXERCISING THE GROUNDWATER BASIN, IT DOES HAPPEN. IT HAPPENS IN EVERY GROUNDWATER BASIN.

WHAT WE'RE ENVISIONING IS A FOOT, FOOT AND A HALF OF SUBSIDENCE, CENTRALLY LOCATED RIGHT OVER THE TOP OF THE CADIZ LAND HOLDINGS. AND THAT'S DUE TO PUTTING THE WATER IN, TAKING THE WATER OUT, RESHIFTING THE SOILS AROUND WHEN YOU GET THEM WET AND THEN TAKE THE WATER BACK AWAY FROM THEM.

AGAIN, IT'S MOSTLY LOCATED RIGHT OVER THE TOP OF THE CADIZ LAND HOLDINGS. THE BIG THING, THOUGH, IS HOW DO YOU ENSURE THAT WHAT WE'VE MODELED, WHAT WE'VE DEVELOPED, AND WHAT WE HAVE MODELED ON THIS PROJECT IS WHAT HAPPENS AS WE MOVE INTO THE FUTURE.

AND MAINLY WHAT THAT GETS DOWN TO IS HOW DO WE MONITOR IT AND HOW DO WE MANAGE THE GROUNDWATER BASIN TO ENSURE THAT WHAT WE HAVE SEEN HERE AND WHAT WE PREDICT IS

WHAT HAPPENS. BASICALLY THERE'S ONLY ONE GOOD WAY TO DO THAT AND THAT'S THROUGH DEVELOPING THE GROUNDWATER MONITORING AND MANAGEMENT PLAN.

IN ESSENCE, THIS GROUNDWATER MONITORING MANAGEMENT PLAN IS GOING TO COVER THE SURFACE EFFECTS TO ENSURE THAT NOTHING HAPPENS MORE THAN WE SAY IT IS, THE GROUNDWATER, THE WATER QUALITY EFFECTS, AND THE WATER HYDROLOGY -- AND THE WATER HYDROLOGY.

BASICALLY, WHAT WE'RE LOOKING AT THE GROUNDWAT MANAGEMENT PLAN WILL DO IS REGULATE THE OPERATIONS OF TH PROGRAM. WHEN WE START TO SEE THINGS HAPPEN, IT WILL SA STOP DOING THIS.

THEN IT WILL ALSO IDENTIFY EARLY AND PROVIDE A MEASURES TO ELIMINATE POTENTIALLY SIGNIFICANT EFFECTS; I OTHER WORDS, WHEN YOU START TO SEE SOMETHING GOING ON, Y CAN ADJUST, AND THAT'S WHAT THE GROUNDWATER MANAGEMENT MONITORING PROGRAM IS GOING TO DO.

WHAT WE'RE GOING TO MONITOR IS -- SOME OF THESE ITEMS I ALREADY TALKED TO YOU ABOUT, PLUS SEVERAL OTHER S WE'RE GOING TO MONITOR SEVERAL CHANGES IN THE GROUNDWATER QUALITY DUE TO BRINGING COLORADO RIVER WATER IN, WHAT'S HAPPENING. WE'VE DONE A LOT OF ANALYSIS, BASIN ANALYSIS THE GROUNDWATER BASIN, BUT WE NEED TO DO THAT IN THE FIEL TO ENSURE WHAT WE THINK IS GOING TO HAPPEN IS WHAT HAPPEN

IN ADDITION, WE'RE GOING TO MONITOR THE

FLUCTUATIONS, WHAT'S GOING ON IN THE GROUNDWATER BASIN, TO ENSURE THAT PUTTING WATER IN DOESN'T ADVERSELY EFFECT ANYBODY, AND WHEN TAKING WATER OUT IT DOESN'T ADVERSELY EFFECT ANYBODY.

ALSO, AS I MENTIONED, WE'LL MONITOR THAT BRINE INTERFACE. THAT'S A GOOD INDICATOR BETWEEN THE SALT WATER, THE SALINE WATER, AND THE FRESH WATER. AND LAST, WE'RE GOING TO MONITOR THE CHANGES IN THE GROUND SURFACE, THE SUBSIDENCE.

THAT PLAN THAT I'M TALKING ABOUT, THE GROUNDWATER MONITORING MANAGEMENT PLAN, WILL BE MADE AVAILABLE TO THE PUBLIC. IT'S GOING TO BE UPDATED ANNUALLY. WE'RE PUTTING TOGETHER THE DETAILS OF WHAT THAT GROUNDWATER MANAGEMENT PLAN IS GOING TO HAVE IN IT, AND IT WILL BE MADE AVAILABLE, THE DETAILS WHAT'S GOING TO BE MONITORED, AND HOW, PRIOR TO THE FINAL DOCUMENTATION OF THE PROJECT.

THERE WAS SOME CATEGORIES THAT WE JUST COULDN'T MITIGATE TO A LEVEL OF NONSIGNIFICANCE; IN OTHER WORDS, WATCHING THE GROUNDWATER BASIN, WE COULD MAKE SURE THAT NOTHING'S GOING TO HAPPEN THERE. WE COULD DO SOME OTHER THINGS TO ENSURE THAT WE DON'T HAVE ANY EFFECT ON DESERT TORTOISES, BUT THERE'S SOME THINGS WE JUST COULDN'T MITIGATE.

BASICALLY WHAT THOSE GET DOWN TO IS THREE ITEMS: PALEOL RESOURCES, THE BONES; SECOND ONE IS AIR QUALITY AND

NOISE; AND THE THIRD ONE IS HAZARDS AND HAZARDOUS MATERI

BASICALLY BECAUSE -- LET ME START AT THE BOTTO ONE. WHAT THIS HAZARDS AND HAZARDOUS MATERIALS MEANS, W MOST PEOPLE KNOW, OUT IN THE DESERT, IT WAS USED FOR TESTING. DURING THE PATTON ERA THEY DID A LOT OF TESTIN OUT IN THE AREA. AND WE'LL BE DOING A PROGRAM TO ENSURE THAT WE DON'T HIT ANYTHING, UNEXPLODED ORDNANCES IN FRON OUR CONSTRUCTION EQUIPMENT.

I'M NOT SURE WE'RE GOING TO GET THEM ALL. I WOULDN'T WANT TO BE THE PERSON ON TOP OF THE BACKHOE, BU THINK WE CAN GET MOST IT, BUT THERE'S NO WAY THAT WE CAN GUARANTEE, BUT THAT'S THE REASON IF WE DO HIT SOMETHING, THAT IS A SIGNIFICANT IMPACT, OR IT WILL BE A SIGNIFICANT IMPACT TO THE PERSON ON THE BACKHOE.

THE NEXT ONE IS AIR QUALITY. DURING CONSTRUCTI WE WILL BE HAVING SOME DUST. WE'RE GOING TO BE USING WATERING TECHNIQUES TO KEEP THE DUST DOWN. IT'S ALREADY DUSTY OUT THERE. ANY ADDITIONAL DUST THAT'S GENERATED IS CONSIDERED SIGNIFICANT. THERE'S NO WAY THAT WE CAN GUARANTEE THAT WE CAN KEEP ALL THE DUST DOWN, SO ANY ADDITIONAL DUST THAT WE GENERATE IN THE AREA DURING CONSTRUCTION WILL BE CONSIDERED SIGNIFICANT.

THE THIRD ONE, PALEOL RESOURCES, HAS TO DO WITH THE BONES. IF YOU UNDERSTAND DRY LAKE BEDS, HISTORICALLY ANIMALS HAVE GONE DOWN TO THE DRY LAKE BEDS FOR VARIOUS

REASONS AND DIED. SO WHAT WE'RE GOING TO RUN ACROSS IS BONES ALONG THERE. WE'RE GOING TO RECORD THAT. WE HAVE PEOPLE OUT IN THE FIELD TO RECORD IT, DOCUMENT WHAT WE RUN ACROSS DURING THE CONSTRUCTION OF THE PIPELINE.

AND THAT INFORMATION IS GOING TO BE MADE AVAILABLE, BUT BECAUSE WE ARE DISTURBING THE BONES THAT ARE IN THE GROUND, THE ANIMAL BONES AND SUCH, THAT WILL BE CONSIDERED A SIGNIFICANT IMPACT.

A LOT OF THE PALEOL-TYPE PEOPLE LIKE TO HAVE THAT SO THEY CAN GET INFORMATION ABOUT HOW THE MOVEMENT OF ANIMALS WERE, BUT AGAIN, YOU CANNOT MITIGATE BELOW THE LEVEL OF SIGNIFICANCE. YOU WILL HAVE AN IMPACT.

BASICALLY ON OUR SCHEDULE -- YOU CAN UNDERSTAND WHERE WE WERE. WE WERE OUT HERE IN FEBRUARY, WE WERE HERE IN THIS ROOM IN FEBRUARY. WE HAD A SCOPING MEETING. THAT SCOPING MEETING ALLOWED US TO HAVE INPUT FROM THE PUBLIC TO UNDERSTAND WHAT ISSUES YOU THOUGHT WERE IMPORTANT, WHAT ISSUES WE NEEDED TO EVALUATE IN THIS DOCUMENT.

THAT SCOPING MEETING HAD A PUBLIC COMMENT PERIOD OF 45 DAYS. IN OTHER WORDS, WE WERE OPEN, TAKING COMMENTS IN WRITING AND IN PUBLIC FOR 45 DAYS, AND SINCE THEN WE HAVE BEEN TAKING THEM ALSO TO FIGURE OUT TO MAKE SURE THAT WE WERE ADDRESSING ALL THE ISSUES THAT WE NEEDED TO.

WHAT WE'VE DONE IS WE'VE PREPARED A DRAFT E.I.R./E.I.S. IN CONJUNCTION WITH B.L.M. A LOT OF PEOPLE

ASKED WHY METROPOLITAN WAS THE LEAD AGENCY. METROPOLIT
A STATE PUBLIC AGENCY. AND LIKE ANY OTHER LEAD AGENCY,
PREPARE OUR ENVIRONMENTAL DOCUMENTS. THE CITY OF TWENT
PALMS PREPARES THEIR ENVIRONMENTAL DOCUMENTS FOR PROJEC
THAT THEY'RE PROPOSING TO IMPLEMENT.

IN CONJUNCTION WITH METROPOLITAN BEING THE LEA
AGENCY, B.L.M. IS THE LEAD AGENCY. THEY'RE THE FEDERAL
AGENCY. THIS IS A FEDERAL DOCUMENT ALSO. SO YOU HAVE A
LITTLE BIT OF A DIFFERENT MIX HERE IN THAT YOU HAVE A JO
DOCUMENT PREPARED BY TWO DIFFERENT PUBLIC AGENCIES.

WHAT WE'RE LOOKING AT IS WE'RE GOING TO HAVE A
PUBLIC COMMENT PERIOD. YOU'LL SEE -- SYL MENTIONED IT'S
90-DAY COMMENT PERIOD. IT'S GOING TO BE OPEN TO FEBRUAR
23RD --

MS. SALENIUS: 2000.

MR. REED: -- YEAH, 2000. SOMETIMES WE CA
COUNT THE DAYS. SOMETIMES WE GET THE 22ND; SOMETIMES WE
1999. I WOULD PREFER FEBRUARY 22ND, 1999, BUT THAT'S NOT
GOING TO WORK, SO WE'RE OPEN -- WE'RE TAKING COMMENTS,
EITHER IN THE PUBLIC MEETING OR IN WRITING, UP TO FEBRUAR
23RD, 2000.

AFTER THAT TIME ALL YOUR COMMENTS WILL BE BROUG
IN. THE B.L.M., METROPOLITAN, THE EXPERT CONSULTANTS WE
HAVE ON THE PROGRAM WILL BE PUTTING TOGETHER RESPONSES TO
THOSE COMMENTS, AND YOU'LL RECEIVE YOUR RESPONSES TO YOUR

COMMENTS PRIOR TO ANY ACTION ON THIS PROJECT AT ALL.

WITH THAT, I'M GOING TO TURN IT BACK TO SYL AND WE CAN GET ON TO THE PUBLIC COMMENT PART OF THE MEETING, GET SOME INPUT ON WHAT YOU THINK ABOUT THE REPORT ITSELF.

MS. SALENIUS: IF ANYBODY WISHES TO SPEAK AND YOU HAVEN'T FILLED OUT A CARD, WOULD YOU PLEASE CHECK WITH KEN AND GET A CARD.

KEN, DID YOU GET ANY YET FROM ANYONE?

KEN ASHFORD: NO.

MAC DUBE: YOU WANT ONE CARD FOR JUST GENERAL COMMENTS; RIGHT? YOU DON'T NEED TO HAVE EVERY SINGLE LIST OF TOPICS YOU WANT TO DISCUSS. THAT'S WHAT YOU HAVE THIS LADY FOR.

MS. SALENIUS: EXCUSE ME. RIGHT NOW WE'RE JUST ASKING FOR THE COMMENT CARDS SO THAT THE STENOGRAPHER THAT IS TAKING DOWN THE COMMENTS HERE HAS THE CORRECT INFORMATION ABOUT EACH OF THE SPEAKERS. SO IF YOU'RE WISHING TO SPEAK, WE'D LIKE YOU TO FILL OUT A CARD AND THEN WE CAN BEGIN TAKING YOUR COMMENTS.

WE'RE GOING TO BE USING THE MICROPHONE. WHAT I'D LIKE TO DO IS, KEN, WHEN YOU GET THE CARDS, IF YOU WOULD CALL OUT THE NAME OF THE FIRST PERSON THAT YOU HAVE AND THEN, IF YOU HAVE MORE THAN ONE CARD, CALL UP THE SECOND NAME AS WELL SO THAT WE KNOW WHO'S NEXT IN LINE TO SPEAK.

WE'D ALSO LIKE THIS EVENING -- IF YOU AGREE WITH

WHAT SOMEONE ELSE HAS SAID, YOU DON'T NECESSARILY NEED T
REITERATE IT. YOU CAN SIMPLY SAY I AGREE WITH WHOEVER S
EARLIER AND LET US KNOW THAT. THAT WOULD ALLOW EVERYONE
USE THEIR TIME EFFECTIVELY AND BE ABLE TO GO HOME TO THE
FAMILIES.

I ALSO WILL -- AS YOU'RE MAKING COMMENTS, I WI
BE WRITING DOWN THE COMMENTS OR QUESTIONS THAT YOU'RE GI
US AT THIS POINT. I KNOW WE HAVE THE STENOGRAPHER HERE,
WHAT WE'D LIKE TO DO IS THEN COME BACK AFTER OUR BREAK A
BE ABLE TO ANSWER ANY OF THE QUESTIONS, AND IT'S A LOT
EASIER FOR ME TO WORK OFF OF THIS, THAN IT IS FOR HER TO
THERE AND TRANSCRIBE THOSE THINGS THAT QUICKLY.

SO WITH THAT, DO WE HAVE ANY OF THE CARDS READY
THIS POINT?

IF NOT, I'LL WAIT A FEW MINUTES.

THE COURT REPORTER: SYLVIA, I NEED THIS
GENTLEMAN'S NAME, PLEASE.

MS. SALENIUS: HE'S FILLING OUT A CARD.
OKAY.

RAMON MENDOZA: MY QUESTION DEALS WITH --
DID YOU WANT THIS ON OR CAN YOU HEAR ME?

MS. SALENIUS: TURN IT ON. YEAH. I THINK
THAT WOULD HELP. AND THE OTHER THING IS LET'S TRY TO SPEA
ONE AT A TIME SO THAT THE STENOGRAPHER CAN TAKE DOWN
EVERYONE'S COMMENTS.

THANK YOU.

RAMON MENDOZA: OKAY.

MS. SALENIUS: WOULD YOU IDENTIFY YOURSELF, PLEASE?

RAMON MENDOZA: I'M SORRY?

THE COURT: WOULD YOU IDENTIFY YOURSELF, JUST GIVE YOUR NAME.

RAMON MENDOZA: YES. MY NAME IS RAMON MENDOZA. I LIVE IN THE MORONGO BASIN.

I'VE GONE THROUGH THE E.I.R./E.I.S. AND I FIND IT VERY EASY TO GO THROUGH, OKAY, AND IT ADDRESSES A LOT OF QUESTIONS SUBJECTIVELY. AND MY CONCERNS ARE FOR THE OBJECTIVE SCIENCE BEHIND SOME OF THE THINGS THAT ARE SAID. AND I'M SURE THAT'S COMING.

LIKE, FOR EXAMPLE, THE DRY-YEAR SUPPLY PROGRAM PROVIDES FOR 150,000-ACRE FEET OF WATER TO BE SHIPPED TO METROPOLITAN TO COME STRAIGHT OUT OF SAN BERNARDINO. IT IS NOT PART OF THE COLORADO RIVER WATER. AND I THINK THAT THAT'S -- THAT WITH THE AMOUNT OF WATER THAT'S AVAILABLE OUT THERE, THAT THAT IS A GOOD PROGRAM, BUT I'D LIKE TO SEE A FIREWALL. I'D LIKE TO SEE A SLOW-DOWN.

M2-1

AND HOW DO WE MAKE SURE THAT WHEN METROPOLITAN DECLARES A DRY YEAR, THAT IT ISN'T A DRY YEAR HERE AS WELL, AND MAKE SOME DECISIONS OVER THAT PARTICULAR HUNDRED-FIFTY-THOUSAND ACRE FEET ALLOTMENT TO MAKE SURE THAT

M2-1

WE MIGHT NOT NEED SOME OF THAT HERE AS WELL?

MS. SALENIUS: OKAY.

KEN ASHFORD: MAYOR DUBE, YOU'RE NEXT.

MAC DUBE: THANK YOU. RAMON, THAT'S ONE I DON'T HAVE TO ASK THAT I HAD ON MY LIST.

I'M MAYOR PRO TEM MAC DUBE, AND I DO HAVE A GR OF QUESTIONS. AND I'LL TAKE THEM ONE AT A TIME.

I, TOO, HAVE READ THE ENTIRE E.I.R./E.I.S., AN I'VE UNDERLINED QUITE A FEW, AND I'VE WRITTEN SOME COMME I GUESS THE FIRST ONE I'LL DIRECT AT THIS GENTLEMAN.

M2-2

BACK IN MARCH WE ASKED, I THINK, A TOTAL OF 27 QUESTIONS. I KNOW I ASKED THE MAJORITY OF THEM. WE WERE TOLD AT THAT TIME THAT DURING THE DRAFTING OF THE E.I.R./E.I.S. THAT YOU GENTLEMEN AND LADIES WOULD GET BAC TO US.

NOBODY HAS GOT BACK TO US UNTIL TONIGHT. NOW, DON'T KNOW WHO SPEAKS WITH FORKED TONGUE, BUT WE CERTAINL WOULD HAVE LIKED TO HAVE RECEIVED SOME SORT OF INTERIM REPORT SOMEWHERE ALONG THE LINE.

M2-3

I UNDERSTAND THE -- SUPPORTING THIS THIN DOCUME IS ABOUT 100 POUNDS OF DOCUMENTS. AM I CORRECT?

MR. REED: UH-HUH.

MAC DUBE: AND WE ARE NOT PRIVY TO THOSE, ALTHOUGH THEY ARE AVAILABLE IN CERTAIN LOCATIONS, AND OBVIOUSLY SINCE THE DATE OF THIS PUBLICATION, I HAVE NOT H

THE TIME TO READ THOSE DOCUMENTS. I TAKE IT THAT THEY SUPPORT WHATEVER YOU HAVE HERE.

I DO NOT KNOW THE NEED OR WHETHER I'M QUALIFIED TO READ THOSE DOCUMENTS. AND PERHAPS MR. MENDOZA'S QUESTIONS CAN BE ANSWERED FROM THOSE DOCUMENTS, OR PERHAPS EVERY ONE OF MY QUESTIONS CAN BE ANSWERED, BUT I DON'T THINK IT'S FAIR TO THE GENERAL PUBLIC, NOR IS IT FAIR TO ME, TO MAKE A PRESENTATION AS ELABORATE AS YOU HAVE IT HERE AND EXPECT US TO REPLY IN A PERIOD OF, DID YOU SAY, 90 DAYS OR 60 DAYS?

MS. SALENIUS: NINETY.

MAC DUBE: NINETY DAYS WHEN IT'S TAKEN YOU SINCE MARCH TO PREPARE FOR THIS PRESENTATION. THERE IS AN IMBALANCE, A GROSS IMBALANCE, IN THE TIME ELEMENT. I THINK IT'S UNFAIR TO THE GENERAL PUBLIC. IT'S UNFAIR TO THE COMMUNITIES, AND I THINK THAT NEEDS TO BE BALANCED OFF.

THOSE ARE MY PRELIMINARY COMMENTS. NOW LET'S GET TO SPECIFICS.

M2-3

THE EXTRACTION OF INDIGENOUS WATERS WAS A CONCERN TO ME IN MARCH. IT'S A CONCERN TO ME, PERSONALLY, AS IT IS TO THE CONSTITUENTS IN THIS COMMUNITY, AND I'M SURE THROUGHOUT THE MORONGO VALLEY TODAY, AS IT WAS IN MARCH.

IT'S ONE THING TO SPEAK OF METROPOLITAN TAKING WATER FROM THE DESERT FOR THEIR NEEDS, AND AS MR. MENDOZA SAID, THERE'S PROBABLY ADEQUATE WATER FOR THAT NEED; HOWEVER, GIVEN THE FACT THAT WE MAY HAVE DRY YEARS, WE MAY

M2-4

NOT HAVE THE WATER SOURCES THAT WE'RE DEPENDING ON NOW T
REPLENISH OUR AQUIFERS, THEN YOU HAVE A DRAW DOWN OF THE
AQUIFER, AND WE DON'T KNOW IF WE'RE GOING TO BE ABLE TO
SUSTAIN THE REPLENISHMENT OF THOSE AQUIFERS OVER TWO YEA
FIVE YEARS, TEN YEARS OR 15.

WE MAY END UP WITH A 25-YEAR SPAN WITH A 20-YE
DRY PERIOD. WHAT ARE YOU GOING TO DO THEN? ARE YOU, WI
CERTAINTY, GOING TO ASSURE THE PEOPLE IN THE HIGH DESERT
THAT THERE WILL BE NO DRAW DOWN OF THOSE AQUIFERS FOR FU
GENERATIONS? I'M NOT TALKING ABOUT MYSELF. I WON'T BE
AROUND HERE, BUT MY CHILDREN AND MY CHILDREN'S CHILDREN
BE.

AND I THINK WE NEED A SATISFACTION OF THAT, A
GUARANTEE, IF YOU WILL, THAT THERE WILL BE NO DRAW DOWNS
IT'S A LOT EASIER FOR US TO GO DOWN OUT THERE AND GET WA
THAN IT IS TO GO TO THE COAST BECAUSE THE COAST DOESN'T
IT. THEY'RE COMING OUT HERE TO GET IT. WE CAN'T GO TO
SACRAMENTO AND GET IT. WE CAN'T -- YOU KNOW, WE CAN'T G
THE BAY AREA AND GET IT.

THEY'RE WORKING THROUGH THE COLORADO RIVER SO,
KNOW, THE BOTTOM LINE IS WE DON'T WANT A DRAW DOWN OF AN
DESERT AQUIFER THAT WE ARE GOING TO NEED IN THE FUTURE.

SO I THINK THE BIG CONCERN OF MOST DESERT
OCCUPANTS IS NO DRAW-DOWN PERIOD, PERIOD, NO DRAW DOWN.

NOW, WHEN I SAY NO DRAW-DOWN, NO EXCESSIVE

M2-4

DRAW-DOWN, WHAT'S EXCESSIVE? YOU'RE THE EXPERTS. HE SEEMS TO THINK A HUNDRED-FIFTY-THOUSAND ACRE FEET IS NOT EXCESSIVE. I DON'T KNOW.

WHEN YOU HAVE AN AQUIFER THE SIZE OF THAT AQUIFER OVER THERE, PERHAPS IT CAN SUSTAIN A DRY YEAR WHERE WE DON'T HAVE ANY RAIN FALL FOR 25 YEARS. I DON'T KNOW. I THINK WE NEED AN ANSWER, THOUGH, WITH YOUR ENGINEERS AND YOUR SPECIALISTS, AND MAYBE THE ANSWER LIES IN THOSE DOCUMENTS THAT WE HAVEN'T SEEN. BUT I THINK ONE OF THOSE FANCY CHARTS OF YOURS SHOULD SHOW THAT AND ASSURE THE PUBLIC THAT WE SHOULD HAVE THAT ASSURANCE.

M 2-4

OKAY? NOW, I MADE COPIOUS NOTES. SOMEBODY ELSE WANT TO GET AHEAD OF ME? I'VE GOT SOME OTHER QUESTIONS IN THERE. ANYBODY ELSE WANT TO GET IN HERE?

KEN ASHFORD: THERE'S ANOTHER SPEAKER, SIR, BUT GO AHEAD.

MAC DUBE: PARDON ME?

MS. SALENIUS: GO AHEAD.

KEN ASHFORD: THERE'S ANOTHER SPEAKER.

MAC DUBE: WHO'S THE SPEAKER? WOULD YOU CARE -- I HAVE SEVERAL OTHER QUESTIONS. WOULD THE OTHER SPEAKER CARE TO JUMP IN? I DON'T WANT TO MONOPOLIZE THIS THING, BUT I DO HAVE OTHERS.

MS. SALENIUS: I THINK THEY'RE HAPPY TO WAIT, I GUESS. GO AHEAD, MAC.

MAC DUBE: OKAY. IF YOU'LL PERMIT ME TO
THROUGH THIS THING, I MADE MARGINAL NOTES IN HERE.
YOUR TERM "INDIGENOUS WATER" IS JUST LOCAL WATER FROM TH
MOUNTAINS, AM I CORRECT?

MR. REED: (NODDING HEAD.)

MAC DUBE: OKAY. NOW, YOU SAY THERE'S NO
THREAT. THERE IS NO THREAT TO OUR LOCAL WATER, AND I GU
THE ANSWER TO THAT IS THAT WE -- WATER DOESN'T FLOW UPHI
IS WHAT I HEARD FROM YOU IN FEBRUARY OR I HEARD FROM WHO
WAS BRIEFING US IN FEBRUARY.

WE HAVE NO THREAT TO OUR WATER HERE BECAUSE TH
WATER UP THERE WOULD HAVE TO FLOW UP HILL IN ORDER TO DA
OUR WATER SOURCE.

M2-5

MR. REED: YEP.

MAC DUBE: BUT, CONVERSELY, I SAY TO YOU,
SIR, THAT WATER CAN FLOW DOWNHILL. WE JUST WENT THROUGH
7.2 EARTHQUAKE. OUR AQUIFERS HERE -- I'M NOT A GEOLOGIS
BUT I ASK YOU THAT QUESTION. COULDN'T THE WALLS OF OUR
AQUIFERS HERE GET FRACTURED IN AN 8.4, 9.2, OR A LARGE
AQUIFER AND FLOW DOWNHILL TO CADIZ AND WE ARE LEFT WITHO
WATER.

HYPOTHETICALLY, COULD THIS HAPPEN? I DON'T NE
THE ANSWER RIGHT NOW, BUT I WANT THAT QUESTION POSED TO
GEOLOGICAL EXPERTS OR HYDROLOGISTS, IF YOU WILL.
I THINK -- I THINK THAT'S A VIABLE AND --

MR. REED: UH-HUH.

MAC DUBE: -- AND LOGICAL QUESTION TO POSE, GIVEN A LARGER EARTHQUAKE THAN WE'VE EXPERIENCED. AND I NEED NOT REMIND YOU THAT WE'VE HAD TWO OF THOSE THINGS OVER THE LAST SIX YEARS AROUND HERE. PRETTY STRONG EARTHQUAKES. AND YOU HAVE TO BE HERE TO APPRECIATE THEM. OKAY? I GOT BOUNCED AROUND PRETTY GOOD IN THE LAST ONE.

M2-5

WHO IS THE REPRESENTATIVE FROM THE B.L.M., THE HEAD PROJECT ON THIS FROM THE B.L.M?

MS. SALENIUS: MOLLY.

MOLLY BRADY: I'M RIGHT HERE. I'M THE FIELD MANAGER OUT OF NEEDLES, AND I'M REPRESENTING B.L.M. OKAY. GO FOR IT.

MAC DUBE: I'VE NEVER MET YOU.

MOLLY BRADY: I'M GLAD TO MEET YOU.

MAC DUBE: THANK YOU. OKAY.

WHERE ARE THE DOCUMENTS IF I NEED TO READ THEM IN THE NEXT 60 DAYS? AND I PLEAD WITH YOU TO EXTEND THAT TIME. I REPEAT THAT. BUT IF I NEED -- IN READING THIS, I HAVE FOUND SEVERAL ITEMS THAT I WANT TO LOOK INTO FURTHER --

M2-6

MS. SALENIUS: CORRECT.

MAC DUBE: -- WHERE IS THE NEAREST PLACE I CAN GET IT?

MS. SALENIUS: I'M GOING TO WANT TO ANSWER THAT NOW BECAUSE --

MAC DUBE: OTHER THAN GOING TO A FRIEND A
BORROWING A COPY?
MS. SALENIUS: I'M GOING TO ANSWER THAT N
BECAUSE I THINK IT'S IMPORTANT FOR EVERYONE IN THE ROOM.
MAC DUBE: WHERE DOES THE GENERAL PUBLIC
MS. SALENIUS: THEY CAN GO TO THE TWENTYN
PALMS BRANCH PUBLIC LIBRARY --
MAC DUBE: OKAY.
MS. SALENIUS: -- THE NEEDLES BRANCH PUBL
LIBRARY, THE BARSTOW BRANCH.
MAC DUBE: AND THEY HAVE EVERYTHING?
MS. SALENIUS: THEY HAVE TWO SETS AT THE
LIBRARY.
RAMON MENDOZA: AS OF WHEN?
MS. SALENIUS: THEY'VE HAD THEM SINCE THE
FIRST WEEK THAT THE DOCUMENT WAS OUT.
RAMON MENDOZA: I WENT TO TRY TO GET THOSE
DOCUMENTS FROM SAN BERNARDINO COUNTY LIBRARY AND THEY SA
THEY DID NOT HAVE THEM.
MATTER OF FACT, THEY GAVE ME BACK INFORMATION,
WHICH I DON'T HAVE HERE, SHOWS THEY'RE ONLY AVAILABLE AT
NEEDLES, BARSTOW, METROPOLITAN WATER AND AT RIVERSIDE
DISTRICT OFFICE OF THE B.L.M.
MAC DUBE: EXCUSE ME, MR. MENDOZA. I'VE
MADE MY POINT. I RECEIVED A CALL YESTERDAY THAT TOLD ME

M2-7

DOCUMENTS WERE NOT PUBLICLY AVAILABLE. IT SUFFICES TO SAY THAT YOU NEED TO LOOK INTO IT.

MS. SALENIUS: WE WILL LOOK INTO THAT AND MAKE SURE THAT THERE ARE APPROPRIATE COPIES AT ALL OF THE PUBLIC LIBRARIES. THE LIBRARIES WERE SENT COPIES.

M2-7

MAC DUBE: OKAY. IN TABLE ES-2 ON PAGE ES-8 UNDER "EXECUTIVE SUMMARY," WHEN YOU SPEAK OF "INTERNAL PRESSURE," ARE YOU TALKING ABOUT THE MEASURES IN FEET OR ELEVATION OF HEAD? ARE YOU TALKING ABOUT INTERNAL PRESSURE OF WATER? IS THIS MEASURED ON A PIPE OF SOME SORT THAT WAS DRILLED INTO THE GROUND? ARE YOU TALKING ABOUT FOOT POUNDS IN THIS DIAGRAM ON THE PRESSURE -- PRESSURE OF A PIPE, TEST PIPE?

M2-8

MS. SALENIUS: SIR, EXCUSE ME. WHAT WE'RE GOING TO DO IS WE'RE GOING TO TAKE ALL THE QUESTIONS NOW, THEN WE'RE GOING TO TRY TO COVER THEM.

MAC DUBE: OKAY. PAGE ES-8, INTERNAL PRESSURE.

MS. SALENIUS: OKAY. WHAT DO WE MEAN BY THAT?

M2-9

MAC DUBE: I WANT TO KNOW WHAT YOUR FIGURES ARE AND WHO WENT OUT THERE IN THE WIDE AREA OUT THERE AND COUNTED THE DESERT TORTOISE AND ACTIVE BURROWS AND OLD BURROWS? SOMEBODY ACTUALLY GO OUT THERE? PARDON ME.

I'M NOT GOING TO CALL ANYBODY A LIAR, BUT WHEN I

SEE SCAT AND I SEE 11 ACROSS THE BOARD FOR EASTERN, WESTERN COMBINATION AND EAST CANAL, YOU KNOW, IT RAISES A BIG QUESTION. I HAD TO SMILE AT THAT ONE.

M2-9

OKAY? BUT ELEVEN TORTOISES IN EACH ONE OF THE AREAS SOUNDS LIKE A REAL NICE FAMILY, YOU KNOW, WELL DISTRIBUTED, HUH? COME ON, GUYS.

THE PUMPING PLANTS. DO YOU HAVE -- I'VE GOT A LOT OF QUESTIONS ABOUT THE PUMPING AND I SAW YOUR CHARTS AND EVERYTHING ELSE AND I'M NOT BEING FACETIOUS, BUT I WOULD HAVE LIKED TO HAVE SEEN -- AND I READ -- IN EVERYTHING I READ IN HERE, IN YOUR CHARTS, I DIDN'T SEE ANY SORT OF A PHASE LINE PLAN.

THIS EVALUATION IS NOT A CHEAP ONE, NOR IS IT A QUICK PLAN. HOW MUCH TIME WILL BE DEVOTED TO THE EVALUATION OF THIS PLAN? YOU'RE TALKING ABOUT DIGGING A DITCH AND LINING IT WITH CONCRETE OR EXTENDING A PIPELINE FROM THE COLORADO RIVER TO CADIZ.

M2-10

MR. REED: UH-HUH.

MAC DUBE: HOW MANY YEARS ARE YOU TALKING ABOUT FOR THIS EVALUATION AND PUTTING AN ELECTRICAL -- EITHER UNDERGROUND ELECTRICAL OR OVERHEAD ELECTRICAL ALL THE WAY TO CADIZ? HOW MANY YEARS ARE WE TALKING ABOUT HERE OR MONTHS? IS THERE A TIME LINE? THAT'S ONE OF THE QUESTIONS I HAVE. AND YOU PROBABLY DON'T HAVE THE ANSWER, BUT I'D LIKE TO HAVE THAT. A PHASE LINE, IF YOU WILL.

M2-10

IF A PROJECT -- IF YOU'VE GONE THIS FAR WITH A STUDY, THERE MUST BE SOME SORT OF A PHASE LINE OR STUDY LINE IN THERE SOMEWHERE.

M2-11

OKAY. THE SEISMIC MITIGATION MEASURES. WOULD YOU PLEASE REVIEW ON PAGE ES-21 THAT THERE IS NO MITIGATION NECESSARY FOR SEISMIC TOPOGRAPHY, GEOLOGY, SOILS AND SEISMICITY. NO MITIGATION NECESSARY? I DON'T UNDERSTAND. I THINK THAT'S GOT TO BE WRONG. I THINK THE MITIGATION -- YOU'D HAVE MITIGATION IN THERE SOMEWHERES FOR REINFORCEMENT OF YOUR CULVERTS, OF YOUR PIPELINE, OF YOUR -- IT DOESN'T SOUND RIGHT.

OKAY?

MR. REED: OKAY.

MAC DUBE: SO I THINK THERE'S GOT TO BE SOME ANSWERS THERE SOMEPLACE.

M2-12

I ONLY HAVE A COUPLE MORE. PLEASE BE PATIENT. OKAY. THERE WAS THE SAME THING. UNPREDICTABLE. THE TOPOGRAPHY, GEOLOGY, SEISMICITY AND SOILS. MY NOTATION WAS SOMEBODY HAD A CRYSTAL BALL, UNPREDICTABLE.

AND I WAS BEING FACETIOUS IN MY OWN NOTES, BUT I'M JUST LOOKING FOR AN ANSWER. THE BOTTOM LINE IS I WAS VERY DISAPPOINTED.

M2-13

WE HAVE A GOOD RELATIONSHIP WITH THE FOLKS AT CADIZ. THEY TOOK THE PAINS TO TAKE ME PERSONALLY DOWN THERE AND GIVE ME A BRIEFING. THEY HAVE SOME -- THEY HAVE AN

ENGINEER OVER THERE WHO WAS VERY PATIENT WITH ME WHO EXPLAINED THE PROCESS, WHO SHOWED ME PERSONALLY AND HAS BRIEFED OTHER PEOPLE ON THE LAYOUT OF WHAT THEY PLAN TO WITH THE -- WITH SOME OF THE PONDS.

MR. REED: UH-HUH.

MAC DUBE: AND THE LAYOUT. I'M IMPRESSED WITH WHAT THEY PLAN TO DO, BUT I THINK THERE'S SOME REAL CONCERNS FOR THE PUBLIC AND I THINK THOSE CONCERNS NEED BE ADDRESSED. I DON'T KNOW WHAT THE PRESS IS FOR 60 DAY IS THIS A SELF-IMPOSED ONE? IS THIS ONE IMPOSED BY B.L. IS THIS ONE IMPOSED BY THE STATE? WHO IMPOSES IT?

M2-13

IF IT'S SELF-IMPOSED, I SUGGEST TO YOU THAT YO EXTEND IT, ALLOW THE PUBLIC TO TAKE A LOOK AT THE DOCUME AND AT LEAST GIVE THEM ADEQUATE TIME TO ASK THE RIGHT QUESTIONS.

THANK YOU.

KEN ASHFORD: NEXT SPEAKER IS MS. SUSAN REILLY.

SUSAN REILLY: I'M SUSAN REILLY. I LIVE HERE IN TWENTYNINE PALMS.

MY BIG CONCERN ABOUT THIS PROJECT IS WHEN YOU BACK ON THE HISTORY OF WATER WHEELING AND DEALING AND BATTLING, WHICH HAS GONE ON FOR A LONG TIME, THERE'S SOM VERY SAD EXAMPLES OF THINGS THAT HAVE HAPPENED THAT ARE HAVING TO BE RECTIFIED NOW, AND I WOULD LIKE TO SEE

M2-14

MEASURES TAKEN TO PREVENT SUCH THINGS FROM HAPPENING TO THIS AREA UNDER DISCUSSION NOW AND UP AROUND CADIZ IN THE AQUIFER THERE. I DON'T WANT TO SEE LOS ANGELES AND ITS VICINITY DRYING UP DESERT AQUIFERS.

I GUESS MY CONCERNS ARE VERY SIMILAR TO MAC'S HERE BECAUSE THESE THINGS HAVE HAPPENED IN THE PAST, IF YOU LOOK UP WATER HISTORY, UNFORTUNATELY.

AND SO I THINK THAT SOMETHING SHOULD DEFINITELY BE DONE AT THE START OF THIS PROJECT TO SET A LIMIT TO HOW MUCH DRAINAGE CAN BE DONE FROM THAT AQUIFER, HOW LOW IT SHOULD BE ALLOWED TO GO, AND I DON'T UNDERSTAND THE TECHNICALITIES OF THESE THINGS, BUT IS IT POSSIBLE TO MEASURE HOW FULL AN AQUIFER IS AT ANY GIVEN TIME BY THE DEPTH OF THE WATER IN THE WELLS?

M2-14

MR. REED: UH-HUH.

SUSAN REILLY: CAN THAT BE DONE?

MR. REED: UH-HUH.

SUSAN REILLY: IT CAN?

MR. REED: YES, MA'AM.

SUSAN REILLY: UH-HUH. WELL, AND THEN CAN YOU PLACE A LOW-POINT LIMIT ON HOW MUCH WATER CAN BE DRAWN FROM THE AQUIFER?

MR. REED: UH-HUH.

SUSAN REILLY: THIS SHOULD BE DONE TO START WITH, I THINK, AND IT SHOULD HOLD THROUGH THE WHOLE PROJECT,

THE 50-YEARS' ENDURANCE BECAUSE THIS COULD BE CHANGED AN
TWISTED AROUND BY POLITICS ON THE WAY THROUGH, AND IF IT
BECOMES A POLITICAL ISSUE WITH A CERTAIN COMMITTEE RUNNI
THE THING, IT WORRIES ME FOR FEAR THIS COMMITTEE MIGHT G
TOO HEAVILY-WEIGHTED ON THE SIDE OF TOO MANY PEOPLE WHIC
WOULD ACTUALLY BE LOS ANGELES, OF COURSE, AND WHO COULD
STAND UP TO LOS ANGELES WHEN IT CAME TO THAT.

M2-14

SO I FEEL THAT SOMETHING SHOULD BE DONE, A DEFINITE LIMIT SHOULD BE PUT ON THIS AQUIFER AND HOW MUC CAN BE DRAINED, AND WHEN IT GETS TO THAT POINT, STOP TAK ANYMORE OUT.

THEN ANOTHER -- I HAVE A QUESTION ABOUT WHAT W HAPPEN IF IN A BIG YEAR FOR THE COLORADO RIVER, WHEN THE FLOODING AND EXTRA WATER THAT YOU WANT TO STORE AWAY, SUPPOSE THERE'S A -- WELL, WOULDN'T THERE BE ALSO A BIG RECHARGE COMING IN FROM THE MOUNTAINS FROM THE FENNER PA ON THE SAME YEAR BASIS?

MR. REED: UH-HUH.

M2-15

SUSAN REILLY: AND I WAS TOLD THAT RECHAR WATER MOVES VERY SLOWLY. WELL, THE WATER THROUGH YOUR P CAN BE PUMPED PRETTY FAST. SO WHAT IF YOU FILL THE AQUI ALL UP WITH COLORADO RIVER WATER AND YOUR RECHARGE CAME SEEPING DOWN FROM THE MOUNTAINS? WHERE WOULD IT GO IF T AQUIFER WAS ALREADY FULL OF COLORADO RIVER WATER? WOULD GO -- COME UP TO THE SURFACE OR WOULD IT FLOW ON DOWN TO

M2-15

BRISTOL LAKE OR WHAT WOULD HAPPEN TO IT?

WELL, THIS IS ABOUT ALL I HAVE TO SAY. MY BIG CONCERN IS THAT I DON'T WANT TO SEE THAT AQUIFER DRAINED, AS MANY AQUIFERS HAVE BEEN BY BIG WATER DEMANDS IN THE PAST. I THINK MEASURES SHOULD BE TAKEN TO DEAL WITH THAT BEFORE THIS IS EVEN STARTED.

M2-16

THANK YOU.

MS. SALENIUS: THANK YOU. DO HAVE WE HAVE ANY OTHER SPEAKERS? IF THAT IS THE CASE -- ARE YOU GOING TO SPEAK?

KEN ASHFORD: I THINK HE MIGHT HAVE ONE.

DAVID FICK: I MIGHT HAVE ONE. I WAS WRITING MY QUESTIONS ON MY CARD.

MS. SALENIUS: THAT'S OKAY. WE CAN TAKE WRITTEN AND ORAL COMMENTS.

DAVID FICK: OKAY. LET ME ASK MY QUESTIONS AND I'LL HAND YOU THE CARD.

MS. SALENIUS: GIVE US YOUR NAME, PLEASE.

DAVID FICK: MY NAME'S DAVID FICK, F-I-C-K, DESERT ENVIRONMENTAL RESPONSE TEAM. I'VE BEEN BUSY WITH EAGLE MOUNTAIN LATELY SO I HAVEN'T BEEN ABLE TO COVER THIS TOO WELL, BUT I STILL HAVE THE QUESTION ABOUT WHO HAS THE FINAL SAY -- AND IT'S A REPEAT OF A QUESTION I ASKED WHEN I WAS HERE LAST TIME -- WHO HAS THE FINAL SAY OF THE WATER QUALITY GOING INTO THE AQUIFER, IF THAT WOULD BE

M2-17

METROPOLITAN WATER DISTRICT OR, I GUESS, CADIZ WOULD BE TWO.

M2-17

OR, WHO ELSE IS IN CHARGE OF THE WATER QUALITY GOING INTO THE AQUIFER? I HOPE IT WOULDN'T BE THE COLOR REGIONAL WATER BOARD.

ANOTHER QUESTION I WOULD HAVE IS ABOUT THE WAT T.D.S. I ASSUME THAT THE T.D.S. IN THE WATER COMING FRO THE COLORADO IS GOING TO BE HIGHER THAN THE T.D.S. OF TH WATER THAT'S IN THE AQUIFER AND COMES THE QUESTION: WIT THE COLLECTION OF THE T.D.S. GOING INTO THE PERCOLATION PONDS, IS THAT GOING TO EFFECT THE PERMEABILITY OF THE PERCOLATION PONDS.

M2-18

I DON'T QUITE HAVE AN UNDERSTANDING THERE OF T TOTALLY UNDISSOLVED SOLIDS. WHEN DO THEY NOT REMAIN SOL AND IF THEY'RE GOING TO INTERREACT WITH WHAT'S IN THE AQUIFER? AND THAT'S WHAT I CAN THINK OF NOW.

ONE MORE. I COULDN'T FIND PUBLIC COMMENTS. THERE WAS A -- WHAT'S THE WORD FOR IT -- SUMMATION OF CONCERNS OF THE PUBLIC, AND THERE'S A REFERENCE TO PUBLIC COMMENTS BEING SOMEPLACE, AND I DON'T SEE A COMPLETE PUBL COMMENTS BECAUSE I WAS INTERESTED IN WHAT THEY SAID AT NEEDLES.

M2-19

MS. SALENIUS: OKAY. OKAY.

MAC DUBE: I JUST THOUGHT OF A FOLLOW-UP H THAT I WROTE DOWN I FORGOT TO ASK.

M2-20

I BELIEVE I ASKED THAT IN MARCH, BUT SOMEBODY WAS GOING TO GET BACK TO ME. WHAT HAPPENS TO THE SEDIMENT THAT THEY BULLDOZE OUT OF THE PERCOLATION PONDS? WHERE DOES THAT GO?

MS. SALENIUS: OKAY.

MAC DUBE: I DON'T KNOW IF IT'S CONSIDERABLE OR NOT. I ASKED THE QUESTION AND I DON'T REMEMBER GETTING AN ANSWER ON IT. IS THAT LOCAL? IS IT SALABLE? IS IT -- YOU KNOW, DO THEY BAG IT UP AND SELL IT? I THINK IT'S MEASURED IN TONS.

MS. SALENIUS: OKAY.

MAC DUBE: WHAT DO THEY DO WITH IT?

MS. SALENIUS: OKAY.

ARE THERE ANY FURTHER ORAL COMMENTS AT THIS POINT? IF THERE AREN'T ANY, WHAT WE'D LIKE TO DO IS TAKE A SHORT BREAK, ABOUT TEN MINUTES, AND THEN WE'RE GOING TO TAKE A LOOK AT THE QUESTIONS THAT WE'VE GOT, AND AFTER THE 10-MINUTE BREAK, IF YOU'D COME BACK INTO THE ROOM, WE'RE GOING TO GO THROUGH THE QUESTIONS AND SEE WHICH ONES WE CAN PROVIDE ANSWERS TO TONIGHT.

THERE MAY BE SOME THAT WE CAN'T ANSWER TONIGHT, BUT YOU'LL HAVE A WRITTEN RESPONSE IN THE FINAL ENVIRONMENTAL REPORT SO ONE WAY OR ANOTHER WE'RE GOING TO GET AN ANSWER.

OKAY. THANK YOU VERY MUCH. AND HOPEFULLY YOU CAN

STICK AROUND FOR THE RESPONSES TO THE QUESTIONS.

(THERE WAS A SHORT RECESS TAKEN AT 8:03 UNTIL 8:24 P.M.)

MS. SALENIUS: OKAY. WE'VE LOOKED OVER T QUESTIONS THAT WERE ASKED EARLIER, AND MR. REED IS GOINC TRY TO ANSWER AS MANY OF THOSE AS HE CAN AT THIS POINT.

MR. REED: I CAN TELL YOU THAT THERE'S SC QUESTIONS I'M JUST NOT GOING TO BE ABLE TO ANSWER HERE. HOPEFULLY, YOU DIDN'T EXPECT ME TO GET INTO THE DETAILS. WILL HAVE TO GET BACK TO YOU ON SOME OF THOSE, BUT I'M G TO TRY TO WALK THROUGH SOME OF THOSE I CAN THE BEST I CA

MS. SALENIUS: AS I MENTIONED EARLIER, AL THE QUESTIONS WILL BE IN THE FINAL ENVIRONMENTAL IMPACT REPORT, IMPACT STATEMENT, AND THEY WILL BE ANSWERED INDIVIDUALLY.

MR. REED: FIRST ONE THAT WE'RE TALKING A HERE HAS TO DO WITH THE TAKING AND EXTRACTING OF THE GROUNDWATER. AND I WENT INTO A LITTLE BIT ABOUT THAT, W WE'RE GOING TO BE PUTTING INTO PLACE TO ENSURE THERE'S N OF COURSE, EFFECTS ON THE GROUNDWATER BASIN. THAT IS TH GROUNDWATER MANAGEMENT MONITORING PLAN.

THAT GROUNDWATER MANAGEMENT MONITORING PLAN IS GOING TO LOOK AT THE NATURAL RECHARGE OF THE GROUND WATE BASIN, HOW MUCH IS IT IS. WE'VE DONE SOME ANALYSIS. WE THINK WE HAVE AN IDEA WHAT IT IS, BUT IT'S GOING TO BE

CONTINUALLY UPDATED TO ENSURE WE DON'T EXCEED THAT, DON'T EXTRACT MORE WATER OUT OF THERE, AND HARM THE GROUND WATER BASIN.

THAT GROUNDWATER MANAGEMENT PLAN IS GOING TO BE MADE AVAILABLE PRIOR TO THE FINAL DOCUMENTATION. IT'S GOING TO BE IN A LIVING DOCUMENT, UPDATED ANNUALLY, MADE AVAILABLE TO THE PUBLIC. THAT'S BASICALLY WHAT WE HAVE ON THIS.

THERE'S A LOT MORE DETAILS IN THE GROUNDWATER REPORT -- GROUNDWATER RESOURCE REPORT, WHICH IS AN ATTACHMENT TO THE E.I.R. ITSELF.

RAMON MENDOZA: WHAT YOU'RE BASICALLY SHARING IS THAT THE RECHARGE IS GREATER THAN A HUNDRED-FIFTY-THOUSAND ACRE FEET A YEAR?

MR. REED: THE RECHARGE IS MORE OF AN CONSTANT NUMBER. THERE WILL BE A LOT OF YEARS WE DON'T EXTRACT WATER AND SOME YEARS WHERE WE DO EXTRACT WATER. THE RECHARGE OVER THE PROJECT PERIOD IS GOING TO BE GREATER THAN WHAT WE --

M2-21

RAMON MENDOZA: ARE YOU WILLING TO SAY WHAT YOU'VE ESTIMATED THE RECHARGE IS?

MR. REED: THE ESTIMATED RECHARGE IS ROUGHLY 30,000-ACRE FEET PER YEAR. AND THE MORE DETAILS ON THAT, EXACTLY WHAT THOSE NUMBERS ARE ARE IN THE GROUNDWATER RESOURCES REPORT. I HAVE A TENDENCY TO ROUND THEM OFF TO ZEROS, BUT THE REAL NUMBER IS IN THE GROUNDWATER REPORT.

MARVIN SHAW: THAT'S AN EPISODIC SUPPLY, A CONTINUOUS SUPPLY.

MR. REED: THE COLONEL ASKED SEVERAL QUESTIONS WHY WE HAVEN'T BEEN BACK AND I DO APOLOGIZE WE HAVEN'T BEEN BACK. WE'VE HAD ROUGHLY FOUR HUNDRED PEOPLE WE'VE BRIEFED ON THIS PROJECT, A MEETING -- THRE MEETINGS A WEEK ON THIS PROJECT. I HAVEN'T ATTENDED AL THEM, CAN'T GO TO ALL OF THEM.

THE CADIZ PEOPLE HAVE PEOPLE UP AT THE RANCH PERIODICALLY TO BRIEF THEM ABOUT THE PROGRAM. SHOULD HA COME BACK TO SEE YOU AND IN THE CITY COUNCIL, AND WE DO APOLOGIZE FOR NOT DOING THAT, AND THERE'S NOT MORE I CA ABOUT THAT. I DO APOLOGIZE FOR NOT BEING BACK HERE.

MAC DUBE: DON'T GET ME WRONG. THEY DID GOOD JOB BRIEFING US AND ANSWERING OUR QUESTIONS ON THE OVER THERE. I HOPE I CLARIFIED THAT.

MR. REED: YES. WE TRIED TO BREAK UP SO OF THOSE THINGS WHEN THEY WERE OUT IN THE FIELD, THEY C HANDLE SOME OF THE PEOPLE OUT THERE. I DIDN'T GO OUT T THOSE ALL THE TIME. I TRIED TO ATTEND A FEW OF THEM, B NOT ALL OF THEM.

BASICALLY WHAT YOU'RE TALKING ABOUT THERE IS HERE IS THE REVIEW PERIOD. HOW LONG DOES THE PUBLIC HA REVIEW THE DOCUMENT?

YOU'RE RIGHT. WE HAVE BEEN PREPARING IT SINC

MARCH. WE'VE HAD ROUGHLY THREE MILLION DOLLARS WORTH OF STUDIES GOING ON TO RESPOND TO THE COMMENTS AND THE INPUT WE GOT IN THE SCOPING MEETINGS. IT TAKES US TIME TO DO THAT MODELING ANALYSIS.

WE'VE HAD PEOPLE OUT IN THE FIELD LOOKING FOR DESERT TORTOISES, CERTIFIED BIOLOGISTS BY THE FISH AND WILDLIFE SERVICE, LOOKING FOR DESERT TORTOISES OUT IN THE FIELD. IT TAKES TIME TO DO THAT. THAT'S THE REASON WHY IT'S TAKEN US TIME TO PREPARE THE DOCUMENTS. ROUGHLY, I'D SAY ABOUT A FOOT AND A HALF THICK OF DOCUMENTS ON THIS PROJECT.

NORMAL C.E.Q.A. COMMENTS -- CALIFORNIA ENVIRONMENTAL QUALITY ACT -- IS 45 DAYS FOR COMMENTS. WE'VE DOUBLED THAT ON THIS PROJECT. WE'VE EXTENDED IT TO 90 ON THIS PROJECT.

NEXT ONE IS THE EXTRACTION OF INDIGENOUS GROUNDWATER. YOU'RE TALKING ABOUT WHAT IS THE EFFECT GOING TO BE HERE IN TWENTYNINE PALMS? IT IS LOWER. YOU'RE RIGHT. THE BASIN THAT WE'RE TALKING ABOUT IS QUITE A BIT LOWER THAN THE TWENTYNINE PALMS BASIN.

YOU'RE TALKING ABOUT 1,200-FEET ELEVATION, 1800-FEET ELEVATION UP HERE, LESS THAN 600 IN THE BRISTOL DRY LAKE AND CADIZ AREA. THERE'S ROCK. THERE'S QUITE A BIT OF STRUCTURE BETWEEN THE TWO GROUNDWATER BASINS, AND I CAN'T GO INTO THE DETAILS ABOUT IT BECAUSE I'M NOT A GEOLOGIST.

WE'LL PUT THE GEOLOGISTS ON THAT TO EXPLAIN THE MOVEMEN
HOW COME IT CAN'T MOVE FROM ONE GROUNDWATER BASIN TO
ANOTHER.

MAC DUBE: MAY I FOLLOW UP ON THAT? THA
ONE OF THE QUESTIONS THAT I POSED BACK IN MARCH, THE
FRACTURE OF AN AQUIFER WALL WITH FLOW OF WATER FROM HIG
LOW OR LOW TO HIGH.

M2-22

MS. SALENIUS: RIGHT.

MAC DUBE: HAD THAT BEEN ANSWERED, I THIN
WOULDN'T HAVE TO ASK IT AGAIN.

MR. REED: WE'LL MAKE SURE WE ANSWER IT.

MS. SALENIUS: THERE IS SOME DISCUSSION I
THE BIG DOCUMENT.

MAC DUBE: YOU DON'T KNOW WHAT A 9.4 WILL
DO, AND WE'LL PROBABLY NEVER HAVE ONE, BUT THEN, AGAIN,
COULD POSSIBLY HAVE ONE NEXT WEEK. WE DON'T KNOW. SOME
SHOULD LOOK INTO IT.

M2-23

MS. SALENIUS: OKAY.

MR. REED: AGAIN, WHAT WE'RE TALKING ABOU
HERE -- I'M SORRY. I WENT DOWN. B.L.M. REPRESENTATIVE.
ANSWERED THAT. MOLLY IS THE NEEDLES FIELD REPRESENTATIV
SHE'S OVER THIS AREA.

YOUR COMMENT HERE HAS TO DO WITH TABLE ES-2.
IS THE INTERNAL PRESSURE? WHAT DOES THAT MEAN? WHAT WE
LOOKED AT IN HERE IS WHAT'S THE INTERNAL PRESSURE OF THA

PIPE? IT MAKES A BIG DIFFERENCE ON WHAT THAT PIPE CAN WITHSTAND. THE LOWER THE PRESSURE, THE THINNER THE STEEL, THE MORE -- LESS PROBLEMS WE HAVE ON MAINTENANCE AND OPERATING THAT PIPE. THAT'S THE NUMBER THAT YOU SEE IN THERE.

THERE'S A LOT OF DIFFERENT WAYS YOU CAN SHOW WHAT THAT NUMBER IS, POUNDS PER SQUARE INCH, P.S.I., ANOTHER ONE IS FEET. FOOT OF HEAD IS ANOTHER WAY OF DEMONSTRATING WHAT THE INTERNAL PRESSURE OF A PIPE IS.

MAC DUBE: MY QUESTION WAS IS THAT AT THE HEAD OR IS THAT AT THE --

MR. REED: THAT'S THE MAXIMUM PRESSURE. IT'S ABOUT HALFWAY BETWEEN.

MAC DUBE: HALFWAY BETWEEN?

MR. REED: IT'S NOT EXACTLY, BUT IT'S THE MAXIMUM PRESSURE OF THE FACILITY THAT THE PIPE'S GOING TO SEE.

OKAY. DESERT TORTOISE ISSUES. I MENTIONED THIS JUST A SECOND AGO. WE'VE HAD A TEAM OF PEOPLE OUT THERE REVIEWING DESERT TORTOISES. YOU MENTIONED 11 SCAT.

WHAT THAT IS IS THERE'S SOME AREAS OF THE PROJECT BETWEEN ALL THE ALTERNATIVES THAT ARE COMMON, SO WHEN THEY RAN ACROSS THAT, IT HIT ALL OF THEM. SOME OF THE PROJECT ELEMENTS ARE NOT COMMON, AND THAT'S WHY YOU SEE SOME DIFFERENCE IN SOME OF THOSE NUMBERS.

M2-24

WE'VE HAD PEOPLE OUT THERE. THEY'VE WALKED EV
ALTERNATIVE, 35 MILES OF THE ALTERNATIVES. THEY COME BA
THEY MOVE OVER A FEW HUNDRED FEET, THEY WALK THEM AGAIN.
AND THAT'S HOW THEY DO THAT. ITS PROTOCOL IS ESTABLISHE
THE FISH AND WILDLIFE SERVICE AND FISH AND GAME TO EVALU
ANY IMPACTS OF DESERT TORTOISES BY THIS PROGRAM.

COMMENTS YOU HAD HERE HAS TO DO WITH PHASING O
THE CONSTRUCTION OF THE PROJECT. I DIDN'T GET INTO THAT
I SHOULD HAVE DURING MY PRESENTATION.

WHAT WE'RE LOOKING AT, ASSUMING THAT THE PROJE
MOVES FORWARD, ASSUMING THAT THE METROPOLITAN BOARD ADOP
IT, B.L.M. MOVES FORWARD ON THE ENVIRONMENTAL DOCUMENTAT
ALSO, WE'RE LOOKING AT ABOUT 14 MONTHS OF CONSTRUCTION O
THIS PROGRAM. IT'S NOT DRAWN OUT OVER A LONG PERIOD OF
TIME. TWELVE TO FOURTEEN MONTHS IS A LONG TIME, BUT FOR
BIG, MAJOR PROJECT LIKE THIS, THAT'S MOVING PRETTY QUICK
WHAT WE WANT TO TRY TO DO IS BE ABLE TO STORE WATER AS S
AS WE CAN, BRING IT IN, GET IT INTO THE GROUNDWATER BASI
AND STORE IT.

IF WE'RE UP HERE BUILDING A FACILITY FOR MULTI
YEARS, WE ARE NOT BEING ABLE TO STORE THE WATER. SO WE
TO GET IT BUILT AS FAST AS WE CAN, GET THAT, THE WATER I
GET IT IN STORAGE WHILE WE HAVE IT AVAILABLE. WE'RE LOO
AT ABOUT 14 MONTHS AFTER DOCUMENTATION IS APPROVED TO WH
WE'LL POSSIBLY END UP IN CONSTRUCTION.

MAC DUBE: I NOTICED THAT PART OF THE STUDY SAYS THAT THE PIPELINE WILL BE WALKED PHYSICALLY AND INSPECTED EVERY FIVE YEARS.

HOW BIG A PIPELINE ARE YOU TALKING ABOUT --

MR. REED: 66 --

MAC DUBE: -- WHEN YOU TALK WALKING THE PIPELINE, THAT'S PRETTY-GOOD SIZED.

MR. REED: -- 66- TO 80-INCH DIAMETER.

MAC DUBE: IS IT?

MR. REED: YES, SIR. IT'S A PRETTY-GOOD-SIZED ONE.

OKAY. SEISMIC. YOU'RE RIGHT. IT SAYS IN THERE THERE'S NO MITIGATION. WHAT WE'RE LOOKING AT DOING IS PUTTING THAT INTO THE DESIGN OF THE PROJECT ITSELF.

IN OTHER WORDS, WE'RE DESIGNING THE PROJECT FOR THE MAXIMUM CREDIBLE EARTHQUAKE. IF YOU ASK ME WHAT THAT IS, I CAN'T ANSWER THAT, GET THE SEISMIC -- IT'S A LOT HIGHER THAN YOU FELT, BUT THE MAXIMUM CREDIBLE EARTHQUAKE THAT'S EVER BEEN SEEN, THAT'S WHAT WE'RE BUILDING INTO THE DESIGN OF THIS PROGRAM.

IT WILL ENSURE WE DON'T HAVE PROBLEMS WITH THE FACILITIES. DURING THE LAST EARTHQUAKE WE'VE HAD SOME -- LITTLE BIT OF PROBLEMS, BUT MOSTLY DUE TO JUST POWER ON ALL THE COLORADO RIVER AQUEDUCT, NOT TO THE METROPOLITAN FACILITIES.

OUR FACILITIES WERE JUST FINE. WE HAD TO WAIT THE POWER TO COME BACK UP TO TURN THE PUMPS BACK ON. SO DESIGNED FOR A LOT MORE THAN YOU SEE. THE REASON WHY IS ENSURE THAT YOU HAVE WATER SUPPLIES WHEN THERE IS AN EARTHQUAKE. YOU CAN'T AFFORD NOT TO HAVE WATER SUPPLIES WHEN THERE IS THAT MAXIMUM EARTHQUAKE.

NINETY DAYS. ENVIRONMENTAL DOCUMENTS. WE ARE CHECKING INTO THE ENVIRONMENTAL DOCUMENTS. WE SENT OUT DOCUMENTS ON THIS PROJECT RIGHT AT THE END OF NOVEMBER, EITHER NOTIFICATIONS, EXECUTIVE SUMMARIES, ENVIRONMENTAL DOCUMENTS, FULL SETS.

WE SENT TWO SETS TO EACH OF THE LIBRARIES THAT ON THE LIST, TWO FULL SETS TO EACH LIBRARY ON THE LIST. WILL BE PROVIDING TO YOUR CITY TWO SETS TOMORROW. WE'RE GOING TO GO BACK, PICK THOSE UP, BRING THEM THROUGH ON T WAY TO NEEDLES FOR ANOTHER MEETING.

MAC DUBE: CAN I MAKE A RECOMMENDATION? CALLING THE LIBRARY, YOU DON'T KNOW IF THEY FILED THAT U THE GROUNDWATER STORAGE, STORAGE, GROUNDWATER DRY-YEAR SUPPLY PROGRAM OR WHATEVER, SO WHOEVER CALLED OVER THERE PROBABLY --

M2-25

MR. REED: WE'RE GOING TO GO BY AND SEE T LIBRARIES.

MAC DUBE: WE HAVE AN E-MAIL SYSTEM. LET KNOW AND WE'LL TRY TO GET THE WORD OUT TO THE NEWSPAPER

M2-26

M2-26

THAT THE PEOPLE WILL KNOW ABOUT IT.

MR. REED: WE'RE ALSO GOING TO GO BY AND SEE EACH OF THE LIBRARIES.

MAC DUBE: I DON'T KNOW HOW THEY'VE INDEXED IT.

MR. REED: YEAH. WE'LL MAKE SURE THEY'RE A LOT EASIER TO FIND.

MS. SALENIUS: A LOT OF TIMES WHEN IT IS AN ENVIRONMENTAL IMPACT REPORT THEY WILL HAVE A SPECIAL PLACE IN LIBRARIES JUST FOR THOSE KIND OF REPORTS. THEY KNOW THE PEOPLE WANT TO LOOK AT THEM.

IF YOU SAY WHERE ARE YOUR CURRENT ENVIRONMENTAL IMPACT REPORTS, THEN THEY CAN POINT YOU TO THAT AREA OF THE LIBRARY.

MOLLY BRADY: WE CAN ALSO SHARE THE WEBSITE ADDRESS.

MR. REED: ANOTHER THING THAT WE HAVE DONE, NOT BY JUST MAILING THEM OUT -- THEY ARE EXPENSIVE -- WE HAVE ALSO PUT THEM AT THE LIBRARIES. WE'RE ALSO PUTTING IT ON THE INTERNET. IT'S ON THE B.L.M.'S INTERNET SITE. IF YOU WANT TO GO BY AND LOOK AT THE DOCUMENT ITSELF, THE E.I.R., IT IS ON THE B.L.M.'S INTERNET SITE.

MAC DUBE: BOTH OF THEM?

MS. SALENIUS: THE BIG DOCUMENT, THE 600-PAGE DOCUMENT THAT IS THE DRAFT ENVIRONMENTAL IMPACT REPORT,

ENVIRONMENTAL IMPACT STATEMENT.

MR. REED: IS THIS -- IS ON THIS LOCATIO
THE REASON WE DON'T HAVE THE ENTIRE -- THIS DOCUMENT JU
ITSELF, THE E.I.R -- GOT A COPY OF IT. SYL, HOLD IT UP

MS. SALENIUS: (COMPLYING.)

MR. REED: THIS DOCUMENT RIGHT HERE IS A
HUNDRED MEGABYTES. WE DIDN'T PUT ALL THE TECHNICAL REP
ON THE INTERNET. WE PUT THOSE AT THE LIBRARIES. THIS
THE E.I.R. ITSELF. IT'S A HUNDRED MEGABYTES ON THE INTE
WEBSITE. IF YOU WANT TO PULL IT UP ON THE INTERNET, YOU
PULL IT UP.

BUT, AGAIN, WE'RE GOING BY THE LIBRARIES TOMOR
FRIDAY, TO MAKE SURE THEY'RE IN THE RIGHT LOCATIONS. WE
SENT TWO SETS TO EACH LIBRARY CERTIFIED MAIL. SOMETIMES
UPSETS PEOPLE, BUT THAT WAY WE MAKE SURE IT GOT TO WHERE
NEEDED TO BE. WE GOT THE SIGNATURE BACK. WE KNOW IT GO
THERE.

AGAIN, WE WERE GETTING INTO SOME DISCUSSION AB
THE GROUNDWATER MANAGEMENT PLAN, AND I THREW THIS BOARD
UP HERE. I DON'T HAVE ALL THE ANSWERS ON THIS. WE ARE
DEVELOPING IT. WE'RE WORKING WITH THE COUNTY ON DEVELOP
THE GROUNDWATER MANAGEMENT PLAN FOR THE PROJECT TO ENSUR
THERE IS NO IMPACTS. WE'RE STILL IN THAT PROCESS.

WE'RE GOING TO HAVE THAT DONE. IT'S GOING TO
LAID OUT EXACTLY WHAT WE'RE MONITORING, WHAT THE FREQUEN

IS OF THE MONITORING, HOW THE MONITORING IS GOING TO BE DONE, AND WHAT THE ACTION LEVEL IS.

IN OTHER WORDS, WHEN ARE WE GOING TO START DOING DIFFERENT THINGS AND WHAT THOSE DIFFERENT THINGS ARE TO ENSURE THERE IS NO IMPACT ON THE GROUNDWATER BASIN.

MS. SALENIUS: THOSE ARE THE LIMITS YOU WERE ASKING ABOUT.

MR. REED: YOU WERE ASKING WHAT ARE THE LIMITS. HOW ARE WE GOING TO KNOW THAT WE'RE NOT DRAINING THAT BASIN.

THERE IS GOING TO BE LIMITS ON THE GROUNDWATER BASIN TO MAKE SURE WE DON'T DRAIN THIS, WITHOUT HAVING SIGNIFICANT EFFECTS ON THE BASIN ITSELF. RIGHT NOW WE ARE WORKING WITH SAN BERNARDINO COUNTY TO SET THAT UP.

M2-27

RAMON MENDOZA: ARE YOU GOING TO STICK BY THE FIGURE OF 30,000-ACRE FEET A YEAR?

MR. REED: WE HAVE THAT NOW. THAT ONE IN ITSELF IS THAT THICK, THE WATER RESOURCES REPORT. THAT ONE -- WHEN WE START GETTING INTO THE ANALYSIS, THE WATER RESOURCES REPORT, THE E.I.R.

AS WE MOVE THROUGH THE PROJECT, THAT NUMBER IS GOING TO BE UPDATED BECAUSE WE'VE GOT A FULL WEATHER STATION GOING IN OUT THERE TO MONITOR WHAT THE PRECIPITATION IS, HUMIDITY, WHAT THE EVAPORATION IS, SO WE HAVE A BETTER HANDLE WHAT'S GOING ON IN THE GROUNDWATER BASIN AND I GUESS

THE ANSWERS WE WILL BE JUST THAT, 30,000.

MAC DUBE: NOW, YOU'VE HAD THREE MEETINGS THIS IS THE LAST OF THREE.

DO YOU HAVE A COMPENDIUM OF THE QUESTIONS POSE DURING THOSE THREE MEETINGS THAT WOULD BE OF INTEREST TO I REALIZE THERE MAY BE DUPLICITY IN SOME OF THE QUESTION BUT ARE THERE AREAS OF CONCERN IN THERE IN SOME OF THE O MEETINGS THAT WOULD BE OF INTEREST TO US WITHOUT REGURGITATING -- YOU KNOW, SOME OF THE STUFF WE'VE ASKED

M2-28

MR. REED: BASICALLY, WE HAVE HAD TWO. THERE'S ONE TOMORROW NIGHT, A PUBLIC HEARING --

MAC DUBE: OH, YOU HAVE ONE TOMORROW?

MR. REED: -- OUT IN NEEDLES. THERE'S A OF SIMILARITIES IN THE MEETINGS, A LOT OF THE SAME QUEST ON THE GROUNDWATER BASIN. THAT'S THE REASON WHY I GO IN LITTLE MORE DETAIL ABOUT THAT, AND NOT AS MUCH WITH CULTURAL, PALEO, AND BIOLOGICAL, AND THAT'S ONE OF THE MAIN FOCUSES. OTHER THAN THAT, THERE'S A LOT OF DIFFERE

THE MEETING WE HAD EARLIER TODAY THERE WAS SOM CONCERNS ABOUT THE SALINE, THE BRISTOL DRY LAKE, WHAT'S EFFECT DOWN THERE. THAT'S BECAUSE THE PEOPLE WE HAD THE MEETING WITH THIS MORNING ARE THE PEOPLE THAT DO THE SAL MINING OPERATIONS. THEY WANT TO KNOW WHAT THE EFFECT IS

YOU HAVE A DIFFERENT AREA THAT YOU'RE CONCERNE ABOUT SO THERE'S A LOT OF DIFFERENCE BETWEEN THE AREAS.

NEEDLES HAS ANOTHER AREA THAT THEY'RE CONCERNED ABOUT.

BASICALLY, THERE IS ONE OVERLAP, THOUGH, AND THAT IS, HOW DO WE PROTECT THE GROUNDWATER BASIN AS WE MOVE THROUGH THE PROGRAM?

MS. SALENIUS: I'D LIKE TO ADD A LITTLE TO THAT. IN THE ENVIRONMENTAL DOCUMENT WE SHOWED YOU, THE ONE THAT'S ABOUT THAT THICK, THERE IS A SECTION IN THE BACK OF THAT THAT SUMMARIZES ALL THE ISSUES RAISED IN THOSE EARLY MEETINGS. THERE'S A SEPARATE PUBLIC PARTICIPATION REPORT -- THAT ONE -- THAT HAS ALL OF THE QUESTIONS AND, YOU KNOW, IN MUCH MORE DETAIL THAT WERE RAISED.

MAC DUBE: OKAY.

MR. REED: ALL THE QUESTIONS WE RECEIVED, ALL THE LETTERS WE RECEIVED ABOUT THE PROJECT AND THIS ONE BEING AVAILABLE AT THE LIBRARY -- WE'LL HAVE A COUPLE SETS OUT HERE IN THE CITY TOMORROW -- THIS IS CALLED A PUBLIC PARTICIPATION REPORT BY THE FINAL ENVIRONMENTAL DOCUMENT.

WHEN THAT'S DONE, THIS REPORT IS GOING TO BE REVISED. ALL THE COMMENTS THAT WE RECEIVE TONIGHT, ALL THE LETTERS THAT WE RECEIVE DURING THIS COMMENT REVIEW PERIOD ARE GOING TO BE IN HERE AND THE RESPONSES TO EACH COMMENT WILL BE IN THIS DOCUMENT SO THEN IT'S GOING TO CHANGE IT'S NAME FROM PUBLIC PARTICIPATION TO PUBLIC PARTICIPATION AND RESPONSE TO COMMENTS. THE COLONEL SAYS IT'S GOING TO BE THAT THICK, BUT IT WILL BE THINNER THAN THAT.

MAC DUBE: GROW A LITTLE BIT?

MR. REED: IT'S GOING TO GET A LITTLE BI
BIGGER. THAT'S NORMALLY HOW WE DO IT. THIS WILL BE MA
AVAILABLE SO YOU CAN SEE WHAT YOUR COMMENTS ARE AND WHA
RESPONSES ARE IN WRITING.

OKAY. BASICALLY WHAT 13 WAS HAS TO DO WITH WH
WET YEARS ARE AVAILABLE IN THE COLORADO RIVER, WHEN WE'R
MOVING WATER IN, PUTTING IT INTO STORAGE. IT'S GOING TO
RAINING. WHAT'S GOING TO HAPPEN TO THE LOCAL GROUND WAT
BASIN ITSELF. TO GIVE YOU AN IDEA ABOUT THIS GROUNDWATE
BASIN -- I DON'T HAVE THE BOARD HERE -- ROUGHLY, THIS BA
HERE HAS ABOUT -- OKAY, HAS ABOUT 22-MILLION ACRE FEET O
WATER IN STORAGE. WHAT WE'RE LOOKING AT MOVING IN TO ST
IS ABOUT A MILLION ACRE FEET.

OKAY. THAT'S A SMALL AMOUNT COMPARED TO WHAT'
THERE. THAT'S WHAT WE'RE LOOKING TO STORE IN THIS
GROUNDWATER BASIN. THERE'S SUFFICIENT STORAGE IN THIS B
FOR QUITE A BIT MORE STORAGE. I DON'T HAVE THE NUMBER H
WE'LL GET THAT BACK TO YOU. THERE'S A LOT OF ROOM
UNSATURATED FOR ADDITIONAL WATER.

THE SHORT ANSWER TO THE STORY IS IT CAN RAIN
A LOT HERE. WE CAN PUT A LOT OF WATER IN AND STILL HAVE
MORE ROOM FOR STORAGE OF MORE WATER. IT'S A VERY LARGE
GROUNDWATER BASIN, ROUGHLY 20 TO 22 MILLION ACRE IN STOR
AND IF WE PUT A MILLION ACRE IN OF COLORADO RIVER WATER,

WE'LL STILL HAVE LOTS OF SPACE.

I'LL GET YOU A NUMBER ON HOW MUCH AVAILABLE SPACE THERE IS AND HAVE THAT IN THE RESPONSE.

OKAY. DON'T DRAIN THE AQUIFER. ALL I CAN SAY THEN IS WE ARE DOING THAT GROUNDWATER MANAGEMENT WORKING WITH THE COUNTY, PUTTING THAT TOGETHER. IT WILL BE -- WILL BE A LIVING DOCUMENT. IT WILL BE ADJUSTED AS WE MOVE INTO THE FUTURE, AND THAT'S HOW WE'RE GOING TO ENSURE KEEPING THE PROJECT DOWN TO NO SIGNIFICANT EFFECTS ON THE GROUND WATER BASIN OVER THE PROGRAM LIFE.

IT'S TWOFOLD ON THE WATER-QUALITY ISSUE. THE GENTLEMAN BROUGHT IT UP. ONE OF THEM'S IN THE MANAGEMENT PLAN, WHAT'S CONSIDERED SIGNIFICANT, WHAT KIND OF IMPACTS, PUTTING COLORADO RIVER WATER IN.

WHAT'S GOING TO HAPPEN TO THAT WATER WHEN WE EXTRACT IT OUT? WHAT HAPPENS IF WE DON'T EXTRACT IT ALL OUT, LEAVE SOME IN? HOW IS IT MOVING TO THE DRY LAKE BEDS. TO THE HIGH SALINITY AREAS, WHAT'S THE EFFECT OF THAT. THAT'S GOING TO BE PART OF THE GROUNDWATER MANAGEMENT PLAN. YOU MENTIONED THE WATER QUALITY BOARD. IT'S THE WATER QUALITY BOARD FOR THIS AREA. WE WILL BE GOING TO THEM FOR CERTIFICATION ON PUTTING WATER IN.

17.

MS. SALENIUS: 16.

MR. REED: T.D.S. COLORADO RIVER WATER IS

HIGHER. I USE THAT WORD AND I SAY IT LOOSELY. YOU HAV
THINK ABOUT WHAT WE'RE DOING. COLORADO RIVER WATER. T
WATER QUALITY UP IN THIS AREA OF THE GROUNDWATER BASIN
ABOUT 300 MILLION GRAMS PER LITER T.D.S.

OKAY. YOU GET DOWN TO -- DRY LAKE BED'S A LO
HIGHER THAN 300 HUNDRED MILLIGRAMS PER LITER OF T.D.S.
MATTER OF FACT, THAT'S WHERE THEY'RE SALT MINING. 1000
MILLIGRAMS. ONE OF THESE OUTLINED ON THE BOARD IS A
THOUSAND MILLIGRAMS PER LITER. SO THE WATER IN THE
GROUNDWATER BASIN IS 300 UP IN HERE, 1000 BY THE DRY LAK
BED, A LOT HIGHER IN MILLIGRAMS PER LITER WHEN YOU GET D
TO THE DRY LAKE BED ITSELF.

YOU CAN SEE THIS BLUE LINE IS A THOUSAND
MILLIGRAMS PER LITER T.D.S. OF THE WATER. COLORADO RIVE
WATER RIGHT NOW IS ABOUT 500 -- 550 MILLIGRAMS PER LITER
IT IS HIGHER THAN THIS. IT'S A LOT LOWER THAN THIS. AN
IT IS GOING TO HAVE SOME EFFECT. WE'RE GOING TO TRY TO
EXTRACT WHAT WE CAN BACK OUT. THAT'S WHY WE'VE POSITION
OUR WELLS WHERE WE HAVE FOR THE PROGRAM, BUT SOME OF IT
GOING TO MOVE DOWN TO THE DRY LAKE BEDS.

M2-29

MAC DUBE: WHERE DOES THE COLORADO RIVER
ALL ITS SALINITY?

MR. REED: BASICALLY, THE LONG AND SHORT
ANSWER IS BUILT-UP EVAPORATION. LAKE HAVASU, FOR INSTAN
22 PERCENT OF THAT WATER, OF THAT ENTIRE RESERVOIR,

EVAPORATES EVERY YEAR. 22 PERCENT.

ANYTIME YOU HAVE THAT KIND OF EVAPORATION OF SURFACE RESERVOIRS, WHAT YOU END UP WITH IS AN INCREASE IN SALINITY.

ANOTHER ISSUE HAD TO DO WITH THE UPPER BASIN OF THE STATE. AGRICULTURAL, THOSE TYPE OF OPERATIONS, INCREASE OF THE SALINITY COMING INTO THE SURFACE GROUNDWATER, SO IT'S INCREASING, BUT AGAIN, IT'S ABOUT 500, 550 MILLIGRAMS PER LITER ON THE COLORADO RIVER AQUEDUCT. THE GROUNDWATER UP HERE IS 300 -- WELL, ABOVE THAT AT THE DRY LAKE BEDS THEMSELVES.

M2-30

MAC DUBE: WHAT ARE THE PARAMETERS FOR SAFE DRINKING WATER?

MR. REED: IT'S A SECONDARY STANDARD AND I'M GOING TO MESS UP THE ANSWER, BUT I'M GOING TO SAY IT'S ABOUT 1500. QUITE HIGH.

DAVID FICK: 1100?

MR. REED: 1100. SEE, I KNEW I WAS GOING TO GET THE ANSWER WRONG.

IT'S A SECONDARY STANDARD, THE TASTE AND ODOR ISSUE.

THAT'S THE PROBLEM ABOUT STANDING UP HERE. YOU GET THE ANSWERS WRONG.

OKAY. WHERE ARE THE PUBLIC COMMENT DOCUMENTS? AGAIN, THIS IS ONE OF THEM. IT'S SUPPOSED TO BE IN

LIBRARIES. WE'RE GOING TO GO BY EACH OF THE LIBRARIES A
HELP THEM WITH THAT. WE DO HAVE THE SIGNED CERTIFICATIO
SLIPS BACK, SO WE KNOW THEY ARE THERE. IT'S JUST A MATT
OF DIGGING THEM OUT. SO THAT WILL BE HERE.

WHAT HAPPENS TO SEDIMENT THAT ARE BULLDOZED FR
THE PERC PONDS? BASICALLY WHAT WE'RE TRYING TO DO WITH
THESE PERC PONDS IT'S A CUT-AND-FILL OPERATION. WE'VE G
SOME FILL GOING ON, SOME CUT, TRYING TO FIGURE THAT OUT.
WE DON'T HAVE EXCESS MATERIAL.

OKAY. SO WE TAKE SOME OF THE AREA, MOVE IT UP,
FORM BERMS, AND THAT WAY IT EVENS OUT OVER THE PROJECT.
DON'T LIKE MOVING A LOT OF MATERIAL OFFSITE FOR THE PERC
BASINS, AND THAT'S HOW WE'RE TRYING TO SIZE THEM THAT WAY

DURING THE MAINTENANCE OF THE PROJECT, WE'RE
LOOKING AT SCRAPING THE BOTTOM, PUSHING UP ON THE SLOPES.
THAT WAY WE DON'T HAVE TO TAKE A LOT OF MATERIAL OUT OF
HERE. THERE COULD BE A VERY MINOR AMOUNT OF MATERIAL TAK
OUT, BUT MOSTLY JUST TAKE IT AND SCRAPE IT UP, PUT IT ON
SLOPES OF BASINS THEMSELVES?

MAC DUBE: THE DRIFT TO MY QUESTION WAS TH
SEDIMENT. I DON'T KNOW. I PICTURE THAT SEDIMENT AS BEIN
POWDERY AND HAVING A BLOW EFFECT ALL OVER THE VALLEY DOWN
THERE, YOU KNOW, WITH THE WIND CONDITIONS THAT WE HAVE.
DON'T KNOW. ANY PROBLEMS WITH THAT DOWN THERE IN THE
VALLEY?

M2-31

MARK LIGGETT: IN THE EXCAVATION OF THE PONDS?

MAC DUBE: YEAH, CLEANING OUT OF THE PONDS PERIODICALLY.

MARK LIGGETT: YOU KNOW, IF THAT'S A HIGH ORGANIC CONTENT, LIKE ALGAE, WE'LL CLEAN OUT, WE'LL PROBABLY ACTUALLY USE THAT FOR FERTILIZING OUR CROPS.

M2-31

MAC DUBE: IS IT SAND OR IS IT --

MARK LIGGETT: PROBABLY BE SORT OF A FLAKY, ALGAE MATERIAL.

MR. REED: I KNOW I DIDN'T ANSWER ALL YOUR QUESTIONS IN DETAIL. I'M NOT THE PERSON TO GO THROUGH ALL THE DETAILS ABOUT THE PROJECT. I CAN ANSWER MOST OF THEM, BUT, AGAIN, WE WILL GET BACK WITH THESE QUESTIONS HERE THAT HAVE BEEN RECORDED, ALSO BEEN WRITTEN DOWN. THERE WILL BE FORMAL WRITTEN RESPONSES PUT TOGETHER ON THESE QUESTIONS YOU'VE HAD TONIGHT.

D.J. MASKER: THOSE WRITTEN QUESTIONS AND RESPONSES HAVE NO EFFECT ON THE CURRENT E.I.R./E.I.S.?

M2-32

MR. REED: YES, THEY DO.

D.J. MASKER: IN WHAT WAY?

MR. REED: THOSE WRITTEN QUESTIONS, YOUR QUESTIONS AND THE QUESTIONS HERE TONIGHT, THE WRITTEN QUESTIONS THAT COME IN, RESPONSES WILL BE PUT TOGETHER. THOSE ARE ALL GOING TO BE PART OF THE FINAL DOCUMENTATION

TAKEN TO OUR BOARD FOR CERTIFICATION, FOR LOOKING AT. B.L.M.'S GOING TO TAKE THOSE INTO ACCOUNT PRIOR TO THEIR ACTION, PART OF THEIR DOCUMENTATION.

MS. SALENIUS: EXCUSE ME. MAY WE HAVE YO NAME FOR THE STENOGRAPHER, PLEASE?

D.J. MASKER: D.J. MASKER.

MAC DUBE: COUNCIL MEMBER D.J. MASKER.

MR. REED: OKAY. I WANT TO THANK YOU ALL FOR COMING TODAY -- THIS EVENING, AND HOPEFULLY WE GOT MO OF YOUR QUESTIONS TAKEN CARE OF.

MAC DUBE: MAY I SAY A COUPLE WORDS BEFORE YOU QUIT?

MR. REED: CERTAINLY.

MAC DUBE: I WANT TO THANK YOU FOR THE ASSEMBLAGE HERE, BEING A REPRESENTATIVE OF THE CITY -- WE HAVE THE CITY MANAGER OUT HERE AS WELL -- FOR COMING UP A MAKING A VERY PROFESSIONAL PRESENTATION.

MR. REED: THANK YOU, SIR.

MAC DUBE: AND IF YOU FEEL YOU'RE UNDER TH GUN, MAYBE YOU WERE, BUT PEOPLE NEED ANSWERS AND I APPRECIATE YOUR CANDOR AND YOUR PROFESSIONALISM.

THANK YOU VERY MUCH.

MS. SALENIUS: THANK YOU.

BY THE WAY, JUST A REMINDER. ANY WRITTEN COMME THAT YOU WANT TO SUBMIT, THE DUE DATE IS FEBRUARY 23RD,

2000, AND IF YOU NEED THE ADDRESSES TO SEND THE COMMENTS TO, TAKE ONE OF THE COMMENT CARDS, OR IF YOU'D JUST LIKE TO SEND IN A COMMENT CARD, THERE'S THE ONES WITH THE STAMPS IN THE BACK OF THE ROOM.

THANK YOU VERY MUCH.

(THE MEETING CONCLUDED AT 8:52 P.M.)

CERTIFICATE OF REPORTER

STATE OF ARIZONA)
)
COUNTY OF MOHAVE)

I, KAREN KOVACS, C.C.R., R.P.R. DO HEREBY CERTIFY THAT I TOOK DOWN IN SHORTHAND (STENOTYPE) ALL OF THE PROCEEDINGS HAD IN THE ABOVE-ENTITLED MATTER AT THE TIME AND PLACE INDICATED, AND THAT THEREAFTER SAID SHORTHAND NOTES WERE TRANSCRIBED INTO TYPEWRITING AT AND UNDER MY DIRECTION AND SUPERVISION, AND THE FOREGOING TRANSCRIPT CONSTITUTES A FULL, TRUE AND ACCURATE RECORD OF THE PROCEEDINGS HAD.

IN WITNESS WHEREOF, I HAVE HEREUNTO AFFIXED MY HAND THE 3RD DAY OF JANUARY, 2000.

Karen Kovacs

KAREN KOVACS, C.C.R., R.P.R.

COPY

The December 16, 1999 Public Scoping Meeting at the City of Needles City Hall consisted of formal presentations by Metropolitan and P&D Environmental staff, followed by public comment. The transcript for this meeting includes both the formal presentations and the public comments. The transcript of the formal presentation is on pages 1 through 19 of the transcript. The part of the transcript for public comments is on pages 19 through 31 of the transcript. There are also intermittent public comments on pages 31 through 48 of the transcript.

COPY

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM

PUBLIC SCOPING MEETING

THURSDAY, DECEMBER 16, 1999

AT NEEDLES CITY HALL

1111 BAILEY STREET, NEEDLES, CALIFORNIA

AT 7:05 P.M.

REPORTED BY: LINDA S. LANE, C.C.R., R.P.R.
CALIFORNIA C.C.R. #7300

MS. SALENIUS: I'D LIKE TO START THE MEETING. I'M VERY HAPPY TO SEE ALL OF YOU HERE THIS EVENING.

MY NAME IS SYLVIA SALENIUS. I AM WITH P & D ENVIRONMENTAL. WE ARE THE FIRM THAT WAS HIRED TO ASSEMB THE ENVIRONMENTAL DOCUMENT. THIS MEETING TONIGHT CONCER THE CADIZ GROUNDWATER SUPPLY AND DRY-YEAR GROUNDWATER -- GROUNDWATER STORAGE AND SUPPLY PROJECT. I OUGHT TO GET THAT RIGHT BY NOW.

WE'RE HERE TO DISCUSS THE ADEQUACY OF THE ENVIRONMENTAL DOCUMENTS THAT WERE RELEASED LAST MONTH. THERE IS A COMMENT PERIOD THAT EXTENDS TO THE LATTER PAR OF FEBRUARY. AND TONIGHT THIS MEETING IS BEING HELD TO GIVE YOU AN OPPORTUNITY TO PROVIDE SOME INPUT TO THAT PROCESS.

DIRK REED IS THE PROGRAM MANAGER FOR METROPOLITAN. DIRK WILL BE MAKING A PRESENTATION ABOUT PROJECT AND SOME OF THE FINDINGS OF THE ENVIRONMENTAL DOCUMENT.

WE ALSO HAVE IN THE AUDIENCE JACK SAFELY. JAC HAS BEEN WORKING WITH DIRK ON THIS PROJECT FOR METROPOLITAN.

KEN ASHFORD IS HERE ALSO FROM METROPOLITAN. K IS GOING TO BE TAKING COMMENT CARDS FROM YOU. SO WHEN Y CAME IN THE DOOR, IF YOU PLAN ON SPEAKING, IF YOU WOULD

PICK UP A COMMENT CARD FROM KEN AND FILL THAT OUT AND GIVE IT BACK TO KEN, THEN HE WILL KNOW THAT YOU WISH TO SPEAK THIS EVENING. AND YOU CAN DO THAT AT ANY TIME DURING THE PRESENTATION, IF YOU SO DESIRE.

THE COMMENT CARDS ARE ALSO SET UP IN A WAY THAT THERE ARE CERTAIN ONES THAT ARE -- THAT HAVE PRE-STAMPS ON THEM THAT YOU CAN MAIL THEM BACK WITH YOUR COMMENTS. YOU CAN ALSO USE THEM AS A SOURCE FOR THE MAIL-BACK ADDRESSES, IF YOU PLAN ON SENDING A LETTER OR SOMETHING OF THAT TYPE.

SO THAT'S BASICALLY HOW WE HAD THAT RESPONSE MECHANISM SET UP.

MOLLY BRADY FROM THE B.L.M. IS ALSO HERE THIS EVENING. THE B.L.M. IS THE CO-LEAD AGENCY ON THIS ENVIRONMENTAL DOCUMENT.

METROPOLITAN IS PROPOSING THE PROJECT AND THEIR BOARD OF DIRECTORS WILL ULTIMATELY MAKE A DECISION AS TO WHETHER THEY WISH TO PROCEED WITH THE PROJECT OR NOT. AND THEN THE B.L.M., BECAUSE THEY HAVE JURISDICTION OVER QUITE A BIT OF THE LAND THAT IS PART OF THE ROUTE OF THE PIPELINE FACILITIES, THEY HAVE TO MAKE A DECISION TO WHETHER THEY ALLOW THE USE OF THAT LAND.

SO, AS I MENTIONED EARLIER, THE PURPOSE OF THIS MEETING TONIGHT IS TO DISCUSS THE ADEQUACY OF THE ENVIRONMENTAL DOCUMENT AND ITS FINDINGS, ITS ALTERNATIVES.

THERE IS A FULL 90-DAY PERIOD OF PUBLIC REVIEW ON

THIS PROJECT. TYPICALLY, THERE IS A 45-DAY PERIOD OF REVIEW UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, A A 60-DAY PERIOD OF REVIEW UNDER THE NATIONAL ENVIRONMENT PROTECTION ACT. AND IN THIS CASE WE ARE ALLOWING A 90-D REVIEW.

THE LAST DAY TO RECEIVE PUBLIC COMMENTS IS FEBRUARY 23RD OF 2000. SO THAT'S THE LATTER PART OF FEBRUARY.

THE WAY THE MEETING WILL PROCEED THIS EVENING THAT DIRK WILL MAKE HIS PRESENTATION. THAT SHOULD TAKE ROUGHLY 20 MINUTES OR SO. AFTER HIS PRESENTATION, WE WI BE TAKING DOWN YOUR COMMENTS.

NOW, WE DO HAVE A COURT REPORTER HERE THIS EVENING, SO I WOULD REQUEST THAT WHEN YOU ARE MAKING YOU COMMENTS, THAT ONLY ONE PERSON SPEAK AT A TIME SO THAT O COURT REPORTER CAN MAKE SURE THAT SHE'S GETTING CORRECT INFORMATION. IT'S VERY DIFFICULT FOR HER TO TAKE DOWN T CONVERSATIONS AT ONCE.

AFTER WE RECEIVE YOUR COMMENTS, WE WILL TAKE APPROXIMATELY A TEN-MINUTE BREAK SO THAT IF THERE ARE AN QUESTIONS THAT WERE RAISED OR ANY COMMENT PERIOD, THEN W WILL HAVE A CHANCE TO ANSWER THOSE QUESTIONS FOLLOWING T BREAK. AND SO WHILE YOU ARE DOING YOUR COMMENTS, AS I D AT THE SCOPING OF THE MEETING -- I DON'T KNOW WHETHER YO WERE HERE THEN -- I WILL BE WRITING DOWN YOUR COMMENTS O

THE PAD AND THEN WE WILL GO THROUGH THOSE AND ANSWER THE QUESTIONS AFTER THE BREAK.

I WANT TO POINT OUT THIS ADDRESS. THIS IS A WEB SITE THAT THE B.L.M. HAS, W-W-W DOT C-A DOT B-L-M DOT GOV/ NEEDLES. THAT IS THE SITE WHERE YOU CAN ALSO READ THE ENVIRONMENTAL DOCUMENT. AND THIS IS THE FULL E.I.R./E.I.S. DOCUMENT, THE 600-PLUS PAGE DOCUMENT, WHICH HAS ALL OF THE EXHIBITS AND ALL OF THE TEXT ON ALL OF THE SPECIAL ISSUES THAT WERE LOOKED AT FOR THIS PROJECT.

WITH THAT, I'D LIKE TO TURN IT OVER -- OH, ONE MORE THING. WE ALSO HAVE DOCUMENTS. IF YOU DON'T HAVE A COPY OF THE FULL BIG DOCUMENT, YOU WANT TO LOOK AT IT, THERE ARE COPIES OF THE DOCUMENT AVAILABLE IN THE PUBLIC LIBRARIES IN NEEDLES, SAN BERNARDINO, BARSTOW AND TWENTYNINE PALMS. SO IF YOU WOULD LIKE TO LOOK AT THOSE DOCUMENTS, AND YOU ONLY RECEIVED THE EXECUTIVE SUMMARY, FOR EXAMPLE, YOU CAN GO FIND THOSE IN THOSE LOCATIONS.

THEY'RE ALSO AVAILABLE AT THE B.L.M. OFFICE HERE IN NEEDLES OR YOU HAVE NEEDLES AND RIVERSIDE ALSO. AND THEY'RE ALSO AVAILABLE AT METROPOLITAN'S DOWNTOWN OFFICE.

DIRK, YOU'RE ON.

MR. REED: THANKS. THANKS A LOT, SYL.

BASICALLY, WHAT I'M GOING TO DO IS JUST GIVE YOU A GENERAL OVERVIEW OF THE PUBLIC INVOLVEMENT PROCESS AND THEN GO INTO A LITTLE BIT MORE DETAIL ABOUT THE PROJECT

ITSELF AND THEN GO INTO -- TURN IT BACK OVER TO SYL, LET HER TAKE US INTO THE PUBLIC COMMENT PORTION OF THIS MEETING.

BASICALLY, WHAT WE'RE DOING HERE TODAY IS TO - THESE PUBLIC MEETINGS ARE BEING HELD TO OBTAIN COMMENTS THE DOCUMENTS. LIKE SYL MENTIONED TO YOU AT THE VERY BEGINNING, NOT JUST E.I.R. AT THE LIBRARY, ALL THE DOCUMENTS WITH THIS ENVIRONMENTAL E.I.R./E.I.S., INCLUDE ALL THE TECHNICAL REPORTS, THE WATER RESOURCES REPORTS, OTHER ONES, THE BIOLOGY AND OTHER ONES ALSO. THEY'RE AL AT THE LIBRARIES THAT SYL MENTIONED A FEW MINUTES AGO.

WHAT WE'RE GOING TO ALSO DO, YOU HAVE SEVERAL AVENUES TO COMMENT. ONE, YOU GET UP AND SPEAK TODAY; TW YOU CAN RETURN A COMMENT CARD LIKE SHE MENTIONED OR WRIT US A LETTER. THE MOST IMPORTANT PIECE OF THAT IS YOU GE US THE LETTER BEFORE FEBRUARY 23RD. I KNOW THIS SAYS FEBRUARY 22ND; IT IS FEBRUARY 23RD, YEAR 2000.

WE GO INTO A LITTLE BIT ABOUT METROPOLITAN THEMSELVES. EVERYBODY UNDERSTANDS WHO METROPOLITAN IS A WHAT WE DO. IT WAS CREATED IN 1928. WE ARE A STATE PUB AGENCY. WHAT WE DO IS SUPPLY WATER TO THE SOUTHERN CALIFORNIA REGION COVERING VENTURA, CALIFORNIA; ORANGE, RIVERSIDE, SAN DIEGO AND SAN BERNARDINO COUNTIES.

WE SUPPLY ABOUT 60 PERCENT OF THE WATER USED I THAT REGION. IN PARTICULAR, METROPOLITAN PROVIDES ABOUT

TWO-THIRDS OF THE WATER USED IN -- IMPORTED WATER -- USED IN SAN BERNARDINO COUNTY. BY 2020, WE WILL BE PROVIDING ABOUT 300,000 ACRE-FEET PER YEAR, SAN BERNARDINO COUNTY.

WE GET OUR WATER FROM TWO BASIC SOURCES: ONE, FROM NORTHERN CALIFORNIA, SACRAMENTO BAY-DELTA, VIA THE CALIFORNIA AQUEDUCT; SECOND ONE WE GET IS COLORADO RIVER WATER VIA THE CALIFORNIA RIVER AQUEDUCT.

MOST EVERYBODY UNDERSTANDS THE GROUNDWATER BASINS IN THE DESERT AREA BUT, BASICALLY, THERE'S TWO KINDS OF GROUNDWATER BASINS IN THE DESERT. THERE'S THE KINDS THAT DRAIN BACK TOWARD THE COLORADO RIVER, SUCH AS THE PIUTE AND CHEMEHUEVI. AND THERE'S THE KIND THAT DRAIN TOWARD DRY LAKE BEDS WHERE THE WATER THEN EVAPORATES AWAY SUCH AS FENNER, BRISTOL AND CADIZ.

SHOWN ON THIS MAP, YOU CAN SEE THAT THERE'S A LOT OF DIFFERENT GROUNDWATER BASINS DIVIDED IN THE DESERT REGION. THESE GROUNDWATER BASINS ARE DIVIDED BY ROCK STRUCTURE IN BETWEEN THEM THAT SEPARATE NOT JUST THE TOPOGRAPHIC, BUT THE SUBSURFACE FLOWS.

A LITTLE BIT ABOUT THE PROJECT ITSELF. THE CADIZ GROUNDWATER STORAGE AND DRY-YEAR SUPPLY PROGRAM HAS BASICALLY THREE COMPONENTS TO IT. FIRST COMPONENT, WE'RE LOOKING TO STORE COLORADO RIVER WATER THAT'S AVAILABLE METROPOLITAN IN WET YEARS IN THE GROUNDWATER BASIN.

THE SECOND COMPONENT, WE'RE LOOKING TO EXTRACT

THAT WATER FROM THE GROUNDWATER BASIN, MOVE IT BACK TO T
COLORADO RIVER AQUEDUCT AND MOVE IT BACK INTO
METROPOLITAN'S SERVICE AREA.

THE THIRD COMPONENT IS A TRANSFER OF SOME OF T
INDIGENOUS GROUNDWATER IN THE BASIN BACK TO THE COLORADO
RIVER AQUEDUCT AND BACK INTO THE METROPOLITAN SERVICE AR

FENNER VALLEY COVERS ABOUT 1300 SQUARE MILES.
IT'S A LARGE GROUNDWATER BASIN. IT RISES IN ELEVATION T
ABOUT 7,500 FEET UP IN THE NEW YORK MOUNTAINS. THESE
MOUNTAINS HAVE SNOW ON THEM AT TIMES. AND IT DROPS DOWN
ABOUT 500 FEET ELEVATION DOWN BY THE BRISTOL/CADIZ DRY L
BEDS.

AVERAGE RAINFALL IN THIS BASIN IS 12 TO 13 INC
PER YEAR. THE BASIN WITH THAT RAINFALL AND THE SNOWFALL
HAS ABOUT 30,000 ACRE-FOOT PER YEAR OF NATURAL
RECHARGE THAT MOVES THROUGH THIS BASIN DOWN TOWARD THE
CADIZ AND BRISTOL DRY LAKES AND EVAPORATES OFF.

YOU CAN TELL THERE'S A DIFFERENCE IN DRY LAKE
BED. THE CADIZ AND BRISTOL DRY LAKE BEDS ARE WHITE. TH
IS BECAUSE THE GROUNDWATER MOVES TOWARD THE DRY LAKE BED
SUBSURFACE AND EVAPORATES OFF. WATER BELOW THE SURFACE
ABOUT FIVE FEET BELOW THE SURFACE.

OTHER DRY LAKE BEDS, SUCH AS HAYFIELD VALLEY,
LOCATED ALONG THE 10 FREEWAY, IS BROWN IN COLOR. THAT DR
LAKE BED HAS NO EVAPORATION OF GROUNDWATER. GROUNDWATER

THERE IS ABOUT 600 FEET BELOW SURFACE. A BIG DIFFERENCE IN THE TWO KINDS OF DRY LAKE BEDS; KIND OF GIVES YOU AN IDEA WHAT'S HAPPENING WITH THE GROUNDWATER ITSELF.

IN ORDER TO FACILITATE THE PROGRAM, A LOT OF FACILITIES NEED TO BE CONSTRUCTED. IN ORDER TO MOVE THE WATER UP INTO THE GROUNDWATER BASIN FOR STORAGE, METROPOLITAN NEEDS TO CONSTRUCT A 35-MILE PIPELINE TO RUN FROM THE IRON MOUNTAIN FACILITY PUMPING PLANT UP TO THE CADIZ AND FENNER VALLEY.

IN ORDER TO INFILTRATE -- GET THE WATER INTO THE GROUND, METROPOLITAN IS GOING TO HAVE TO CONSTRUCT ABOUT 400 ACRES OF SPREADING BASINS. AND THEN TO EXTRACT THE WATER BACK OUT OF THE GROUND, APPROXIMATELY 30 EXTRACTION WELLS WILL BE CONSTRUCTED.

THOSE ARE THE FACILITIES THAT WERE NEEDED IN ORDER TO ACCOMPLISH THOSE THREE OBJECTIVES OF STORING WATER, EXTRACTING WATER AND TRANSFERRING SOME OF THE NATIVE GROUNDWATER.

AS PART OF THE ENVIRONMENTAL PROCESS, A NUMBER OF CATEGORIES WERE STUDIED. SOME OF THESE CATEGORIES WERE DEVELOPED AS PART OF THE SCOPING PROCESS, THE SCOPING MEETINGS WE HAD AT TWENTYNINE PALMS, CADIZ RANCH SITE AND HERE. THESE COVERED SUCH THINGS AS HYDROLOGY, WATER QUALITY, PALEO -- THE BONES AROUND THE DRY LAKE BED -- DOWN TO HAZARDOUS SERVICES, HAZARDOUS WASTE HAZARD.

IN THIS CASE WE ARE TALKING ABOUT UNEXPLODED ORDNANCES IN THE DESERT AREA. WHAT I'D LIKE TO TALK ABO IS MAINLY A FEW OF THEM THAT MOST OF THE PUBLIC HAD QUESTIONS ABOUT, THAT HAVE SOME ISSUES ADDRESSED IN THE ENVIRONMENTAL DOCUMENT.

I'M GOING TO GO ACROSS A FEW OF THESE. THESE DISCUSSED IN DEPTH IN THE ENVIRONMENTAL DOCUMENT ITSELF. FOR INSTANCE, HYDROLOGY; A LOT OF PEOPLE WANTED TO KNOW WHAT'S GOING TO BE THE EFFECT WHEN METROPOLITAN STORES APPROXIMATELY A MILLION ACRE-FEET OF WATER IN THE GROUNDWATER BASIN, WHAT'S GOING TO HAPPEN WITH THE GROUNDWATER BASIN ITSELF?

AS YOU CAN SEE ON THIS ILLUSTRATION, WHAT YOU SEE IS YOU WILL SEE A GROUNDWATER MOUND FORM UNDERNEATH SPREADING BASINS. APPROXIMATELY A HUNDRED AND EIGHTY FE MOUND WILL BE FORMED UNDERNEATH THAT SPREADING BASIN. T WATER WILL FAN OUT TO WHERE IT GETS ABOUT A FOOT OF THE INCREASED GROUNDWATER ELEVATION OVER THE NATIVE GROUNDWATER ITSELF.

YOU CAN SEE THAT THE MARBLE MOUNTAINS AND THE SHIP MOUNTAINS ISOLATE THIS MOUNDING RIGHT OVER THE TOP THE CADIZ PROPERTY OF THE CADIZ LANDHOLDING IN THE FENNE VALLEY HERE.

NEXT BIGGEST QUESTION WAS WHAT HAPPENS WHEN METROPOLITAN EXTRACTS WATER FROM THE GROUNDWATER BASIN,

JUST THE WATER WE STORED THERE, BUT IF WE EXTRACT ADDITIONAL WATER, NATIVE GROUNDWATER, FROM THE GROUNDWATER BASIN, WHAT'S GOING TO BE THE EFFECT?

YOU CAN SEE HOW THIS ILLUSTRATION -- WHAT HAPPENS IS IT ENDS UP CREATING ABOUT A HUNDRED AND EIGHTY FOOT HOLE IN THE GROUNDWATER BASIN. AGAIN, LOCATED UNDER THE CADIZ PROPERTIES, FANS OUT TO ABOUT A FOOT OF DISTANCE BETWEEN THE NATIVE GROUNDWATER WHERE IT WOULD HAVE BEEN WITHOUT THE PROJECT.

WHEN THE BIG AREAS DOWN IN THE BRISTOL DRY LAKE WAS A BIG CONCERN HAVING TO DO SALT MINING AND SALT MINING OPERATION THAT ARE LOCATED DOWN THERE, WE HAD SEVERAL QUESTIONS OF WHAT WOULD BE THE EFFECT ON THE SALT MINING OPERATIONS OF BRISTOL DRY LAKE.

OVER TIME, THE BRISTOL DRY LAKE IS GOING TO SEE A CHANGE IN ELEVATION. IT'S NOT GOING TO BE ALL POSITIVE; NOT GOING TO BE NEGATIVE. AS YOU CAN SEE, THIS IS BEING INCHES ON THE SIDE OF THE BOARD. AS YOU CAN SEE, WHEN WE PUT WATER IN, BRISTOL DRY LAKE IS GOING TO SEE AN ELEVATION RISE IN THE GROUND WATER ABOUT 12 INCHES.

BY THE -- HALFWAY THROUGH THE PROGRAM, YOU ARE GOING TO SEE ABOUT A 12-INCH DECLINE IN THE GROUNDWATER BASIN. AS IT MOVES, OVER TIME, IT'S GOING BACK TO EQUILIBRIUM, BACK TO ZERO EFFECT ON THE GROUNDWATER BASIN ITSELF.

SEVERAL PEOPLE WANTED TO KNOW IF THERE'S GOING BE AN EFFECT ON WATER QUALITY. BY INTRODUCING COLORADO RIVER WATER IN THE GROUNDWATER BASIN, WHAT WOULD BE THAT EFFECT?

COLORADO RIVER WATER HAS A DIFFERENT QUALITY T THE GROUNDWATER DOES. AS YOU'RE OPERATING THE GROUNDWAT BASIN, PUTTING WATER IN AND TAKING WATER OUT, WHAT'S GOI TO HAPPEN TO THE QUALITY OF THE WATER?

AN ILLUSTRATION OF THAT, WHAT HAPPENS WITH THE SALINE INTERFACE, IN ESSENCE, GOT FRESH WATER IN FENNER VALLEY, SALINE WATER IN THE DRY LAKE BEDS, WHAT'S GOING BETWEEN THOSE TWO WHEN YOU OPERATE THIS PROGRAM?

AS YOU CAN SEE, THE MAXIMUM INVOLVEMENT OF THA SALINE INTERFACE, THE PORTION BETWEEN THE SALINE WATER A THE FRESH WATER, IS ABOUT 2,000 FEET, THE MAXIMUM MOVEME OF THE SALINE INTERFACE.

WHAT HAPPENS IS WHEN WE PUT WATER IN, IT START TO MOVE AWAY. WHEN WE TAKE WATER BACK OUT, IT STARTS TO MOVE BACK. IN ESSENCE, WHAT IT DOES, IT MOVES AWAY FROM THE PLACE ABOUT 2,000 FEET AND IT MOVES BACK TO ZERO.

MOST OF YOU MIGHT BE FAMILIAR WITH GROUNDWATER SURFACE ELEVATION CHANGES THAT HAVE HAPPENED IN THE CENT VALLEY. UP THERE, DUE TO GROUNDWATER EXTRACTION, THEY H SOMEWHERE AROUND 30 TO 60 FEET ELEVATION CHANGE IN THE SURFACE ITSELF. IT'S A MAJOR ISSUE THAT NEEDS TO BE LOO

AT AS PART OF THE ENVIRONMENTAL DOCUMENTATION PROCESS, AND WE DID THAT ALSO HERE.

BY PUTTING WATER IN AND TAKING WATER BACK OUT, THERE ARE SATURATING ZONES OF SOIL THAT HASN'T BEEN SATURATED BEFORE. WHAT YOU SEE IS YOU CAN RE-LAY THE BEDS OF SOIL AGAIN. WHAT HAPPENS IN DOING THAT IS IT CONSOLIDATES, IT SUBSIDES. THE MAXIMUM SUBSIDENCE THAT WE'RE LOOKING AT TO HAVE ON THIS PROJECT IS ABOUT A FOOT AND A HALF OF SUBSIDENCE LOCATED AGAIN ON THE CADIZ PROPERTY. THAT'S SPREAD OVER ABOUT THREE MILES ACROSS AND ABOUT SIX MILES ALONG.

YOU CAN MODEL, YOU CAN CALCULATE, YOU CAN ESTIMATE WHAT THE EFFECTS OF ANY PROGRAM IS ON THE GROUNDWATER BASIN, BUT THE BEST THING TO DO IS TO DEVELOP A GROUNDWATER MANAGEMENT PLAN TO ENSURE THAT THE EFFECTS THAT YOU HAVE MODELED THAT YOU DETERMINED WOULD HAPPEN, NOTHING HAPPENS WORSE THAN THAT. AS A MATTER OF FACT, YOU TRY TO ALLEVIATE THOSE EFFECTS. THE BEST WAY TO DO THAT AGAIN IS DEVELOP A GROUNDWATER MANAGEMENT PLAN.

THAT IS WHAT METROPOLITAN IS DEVELOPING IN WORKING WITH SAN BERNARDINO COUNTY. WE ARE DEVELOPING A GROUNDWATER MANAGEMENT PLAN FOR THIS PROJECT, GROUNDWATER MANAGEMENT PLAN WILL BE PART OF THE FINAL DOCUMENTATION AND WILL BE UPDATED ANNUALLY.

A GROUNDWATER MANAGEMENT PLAN IS GOING TO

REGULATE THE OPERATIONS OF THE PROGRAM. IN OTHER WORDS, WHEN SOMETHING IS STARTING TO HAPPEN OUT THERE, WE START SEE THINGS CHANGE. WHAT WE ARE GOING TO DO IS WE'RE GOI TO CHANGE THE OPERATIONS. IT'S ALSO GOING TO IDENTIFY EARLY ANY -- AND PROVIDE MEASURES TO ELIMINATE ANY POTENTIALLY SIGNIFICANT EFFECTS. THAT IS WHAT A GROUNDWATER MANAGEMENT PLAN IS SUPPOSED TO DO.

THE KINDS OF THINGS WE ARE GOING TO LOOK AT, CHANGES IN THE WATER QUALITY DUE TO THE COLORADO RIVER WATER BEING PUT INTO THE GROUNDWATER BASIN ITSELF.

OTHER ITEMS, FLUCTUATIONS OF GROUNDWATER LEVEL WE WILL HAVE TO MAKE SURE WHAT WE SHOW IS HAPPENING IN O MODELING IS WHAT HAPPENS IN THE GROUNDWATER BASIN.

WE ARE GOING TO LOOK AT THE MOVEMENT OF THE BR WATER INTERFACE THAT HAS AN EFFECT ON THE GROUNDWATER BASIN; AND ALSO WATCH THE CHANGES IN THE SURFACE ITSELF WITH ELEVATION SURVEYS SO THAT WE CAN KEEP A CLOSE EYE O THAT.

THIS IS WHAT WE PLAN TO DO IN ORDER TO MONITOR MANAGE AND THIS ALSO HAS MEASURES TO CORRECT ANYTHING THAT'S GOING ON OUT THERE IN THE GROUNDWATER BASIN ITSEL DOWN TO CHANGE IN THE OPERATIONS OF THE PROGRAM.

BASICALLY, WE ENDED UP WITH THREE TYPES OF RESOURCES THAT WE COULD NOT MITIGATE BELOW THE LEVEL OF SIGNIFICANCE. THOSE THREE RESOURCES COVER BROAD AREAS S

AS PALEO RESOURCES, AIR QUALITY AND NOISE AND HAZARDOUS MATERIALS.

FIRST, THE BOTTOM ONE WHAT THAT HAS TO DEAL WITH, THAT HAS TO DEAL WITH UNEXPLODED ORDNANCES. WE ARE GOING TO BE SERVING IN FRONT OF THE CONSTRUCTION EQUIPMENT TO SEE IF WE HAVE ANY ORDNANCE OUT THERE, BUT THERE IS NO GUARANTEE THAT WE ARE GOING TO BE ABLE TO SEE ALL OF THEM AND REMOVE THEM PRIOR TO CONSTRUCTION.

IF THE CONSTRUCTION EQUIPMENT RUNS ACROSS ANY OF THOSE ORDNANCES, THAT WOULD BE A SIGNIFICANT IMPACT, SPECIALLY TO THE PEOPLE THAT ARE IN THE CONSTRUCTION. YOU CAN'T MITIGATE THAT BEYOND THE LEVEL OF SIGNIFICANCE AND BE SURE. THAT IS THE REASON WHY THAT WOULD BE REMAINING.

SECOND ONE HAS TO DO WITH AIR QUALITY AND NOISE. THERE IS QUITE A BIT OF DUST OUT THERE ALREADY. IF INCREASED, ANY DUST IN THE AREA IS GOING TO BE CONSIDERED SIGNIFICANT. WE HAVE CONSIDERABLE MEASURES THAT WE HAVE IN PLACE TO MITIGATE FOR DUST. BUT THE INCREASE IN ANY DUST DUE TO CONSTRUCTION WILL STILL CAUSE SIGNIFICANT IMPACT.

THE LAST ONE HAS TO DO WITH PALEO RESOURCES; THOSE ARE BONES. WHAT YOU HAVE WHEN YOU GET AROUND DRY LAKE BEDS IS THE CONSIDERABLE AMOUNT OF ANIMALS THAT HAVE GONE DOWN TO THE DRY LAKE BEDS, ENDED UP DYING DOWN THERE. WE EXPECT TO GET SOME OF THE BONES AS PART OF THE CONSTRUCTION OF THE PIPELINE. WE WILL MONITOR THOSE. WE

WILL RECOVER WHAT WE CAN ON THOSE. WE WILL DO STUDIES O
SOME OF THEM.

METROPOLITAN HAS DONE EXTENSIVE WORK ON PALEO
RESOURCES IN THE PAST AND DO SO ON THIS PROJECT ALSO. B
BY EXCAVATING ANY OF THOSE RESOURCES, THUS HAVE A
SIGNIFICANT IMPACT, YOU CANNOT MITIGATE THAT BELOW THE
LEVEL OF SIGNIFICANCE. THAT IS THE REASON WHY THAT ONE
REMAINING.

THAT IS WHERE THE TIME LINE -- YOU REMEMBER WE
WERE OUT HERE IN FEBRUARY -- MARCH WHEN WE HAD THE SCOPI
MEETING. THAT WAS WHEN YOU COULD GIVE US INPUT ON WHAT
ISSUES WE NEEDED TO ADDRESS IN THE ENVIRONMENTAL DOCUMENT
WE BELIEVE WE HAVE ADDRESSED THOSE. THOSE, AS SYL
MENTIONED TO YOU, ARE AVAILABLE AT THE LIBRARY FOR YOU TO
GO BY AND SEE. TWO FULL SETS AT EACH LIBRARY. ALSO, THE
ARE AVAILABLE AT THE NEEDLES OFFICE.

WE HAVE PREPARED THAT DRAFT E.I.R., PUT IT OUT
PEOPLE TO READ, COMMENT ON. WE ARE HAVING THESE PUBLIC
MEETINGS TO GET YOU THE INFORMATION, TO LET YOU KNOW WHAT
AVAILABLE, WHERE IT IS.

WHAT WE'RE LOOKING AT IS HAVING A COMMENT PERIO
THROUGH FEBRUARY 23RD -- AND I KNOW WHAT IT SAYS ON THE
BOARD -- FEBRUARY 23RD, THE YEAR 2000. YOU MIGHT SEE ONE
THING EVERY NOW AND THEN SAYS FEBRUARY 23RD, 1999. THAT'
NOT THE COMMENT PERIOD DATE EITHER. ONE OF THOSE Y2K

PROBLEMS, WHEN YOU TYPE IT IN, DOESN'T QUITE FIX IT. IT IS FEBRUARY 23RD, YEAR 2000 IS CLOSED COMMENT PERIOD. WE'D LIKE TO HAVE YOUR COMMENT LETTER BY THAT DATE.

C.E.Q.A. HAS A 45-DAY COMMENT PERIOD.

N.E.P.A. HAS A 60 DAYS. THOSE ARE THESE PERIODS FOR CALIFORNIA QUALITY ACT, NATIONAL ENVIRONMENTAL POLICY ACT. THOSE ARE DIFFERENT COMMENT PERIODS. THIS ALSO HAS A DESERT PLAN AMENDMENT ATTACHED TO IT, HAS A 90-DAY COMMENT PERIOD. WHAT WE'VE DONE IS EXTENDED ALL OF THEM TO THE 90-DAY COMMENT PERIOD TO ALLOW YOU TO COMMENT, NOT JUST ON THE PLAN AMENDMENT CHANGES, NOT JUST ON THE C.E.Q.A. CHANGES, EVERYTHING ALL THE WAY THROUGH THE FULL EXTENT OF THE COMMENT PERIODS.

WHAT WILL HAPPEN IS METROPOLITAN'S BOARD WILL LOOK AT YOUR COMMENTS.

LET ME BACK UP A STEP FIRST. EVERY COMMENT YOU SUPPLY TO US, EITHER TODAY WHEN YOU GET UP AND SPEAK, OR ON THE COMMENT CARDS, OR EVEN WHEN YOU WRITE A LETTER TO US, WILL BE RESPONDED TO IN WRITING. YOU WILL GET A WRITTEN RESPONSE TO THOSE COMMENTS. WHAT I SAY TODAY WILL BE MOSTLY FOR CLARIFICATION OF THE PROJECTS BECAUSE I DON'T KNOW ALL THE TECHNICAL ASPECTS OF THE PROGRAM. WE CAN FILL UP THE ROOM WITH THE PEOPLE THAT HAVE DONE THE WORK ON THAT, AND SO WE DECIDED TO LEAVE THOSE PEOPLE HOME, TRY TO GIVE YOU WHAT WE CAN.

YOU TELL US WHAT YOUR COMMENTS ARE, WE WILL RESPOND TO YOUR COMMENTS IN WRITING PRIOR TO ANY BOARD ACTION OR ANY ACTION WITH THIS PROJECT. THOSE COMMENTS, THIS ENVIRONMENTAL DOCUMENT, WILL ALL BE PROVIDED TO METROPOLITAN'S BOARDS FOR ACTION, INCLUDING B.L.M., PRIO TO ACTION, THAT WAY YOU GET -- YOU KNOW THAT YOUR COMMEN ARE PART OF THE PROCESS.

IF THE PROJECT MOVES FORWARD, WHAT WE'RE LOOKI AT IS ABOUT 12 TO 14 MONTHS WORTH OF CONSTRUCTION. THAT HOW LONG IT'S GOING TO TAKE TO BUILD THE PROJECT. IT'S LARGE PROGRAM, A LOT OF CONSTRUCTION ACTIVITIES. IT WIL TAKE ABOUT A LITTLE OVER A YEAR TO CONSTRUCT THIS PROJEC SO YOU ARE LOOKING FOR IT TO BE ON LINE, OPERATIONAL, SOMETIME AROUND SPRING OF 2001.

WITH THAT BEING SAID, WHAT I WILL DO IS TURN I BACK OVER TO SYL, LET HER TAKE US INTO THE PUBLIC COMMEN PORTION OF THE MEETING. SHE'S GOING TO BE WRITING DOWN COMMENTS ON THE BOARD. THE STENOGRAPHER IS GOING TO BE TRYING TO RECORD YOUR COMMENTS YOU GOT TO -- REASON TO S YOUR NAME, SHE CAN GET THAT STRAIGHT, WE CAN GET IT ALL THE RECORD SO WE GET THEM RESPONDED TO.

THANK YOU.

MS. SALENIUS: HAS EVERYONE WHO WISHES TO SPEAK THIS EVENING FILLED OUT A COMMENT CARD? GET ONE F KEN THERE. COULD YOU RAISE YOUR HANDS IF YOU'D LIKE A

COMMENT CARD?

(NO HANDS RAISED.)

MS. SALENIUS: OKAY. I JUST WANT TO MAKE ANOTHER STATEMENT ABOUT THE RESPONSES TO THE COMMENTS. RESPONSES TO THE COMMENTS WILL BE COMPILED IN A DOCUMENT THAT WILL BE USED AS THE FINAL ENVIRONMENTAL IMPACT STATEMENT, ENVIRONMENTAL IMPACT REPORT; SO THEY WILL ALL BE TOGETHER IN ONE DOCUMENT AND AVAILABLE FOR YOU TO REVIEW.

I'D LIKE TO TAKE THE FIRST SPEAKER, IF WE HAVE A NAME.

LINDA STARR: NO, NO. THAT'S OKAY. I'M NOT QUITE READY.

MS. SALENIUS: PARDON?

MR. ASHFORD: THAT'S THE ONLY ONE WE HAVE SO FAR, MRS. STARR.

MS. SALENIUS: ALL RIGHT.

RUTH LOPEZ: I WILL GIVE YOU MINE.

MS. SALENIUS: I WILL WAIT A MOMENT.

RUTH LOPEZ: I WILL JUST -- QUESTION ONE. MY FIRST ONE IS WHO WILL BE MAKING A DECISION ON THIS PROJECT, SPECIFICALLY NAME, PHONE NUMBER, ADDRESS; AND WHAT INTEREST THEY HAVE IN THIS PROJECT? WHAT SHARES THAT YOU HAVE ALREADY GIVEN THEM IN THE COMPANY AND ANYBODY ELSE INVOLVED IN DECISION MAKING, IF THEY HAVE BEEN -- ALSO BEEN GIVEN SHARES IN THE COMPANY, THE PUBLIC WOULD LIKE TO KNOW.

M3-1

WHAT INTEREST THEY HAVE, AND WHO'S GOING TO MAKE THE DECISION WHAT INTEREST IN THE PROJECT THEY HAVE?

THAT'S MY FIRST QUESTION.

MS. SALENIUS: OKAY.

RUTH LOPEZ: COULD YOU PLEASE GIVE US AN ANSWER?

MY NAME IS RUTH LOPEZ, 420 E. STREET, NEEDLES, CALIFORNIA; PHONE NUMBER (760) 326-4318; ALSO 2519. MESSAGE: 4318.

M3-2

I AM DIRECTOR OF PEOPLE AGAINST RADIOACTIVE DUMPING. I AM FORMER COUNCIL PERSON OF THE CITY OF NEEDLES, ALSO FORMER EMPLOYEE ARCHEOLOGIST AT TH BUREAU OF LAND MANAGEMENT WITH REINSTATEMENT RIGHTS -- B THE WAY. AND I WAS AN EXEMPLARY EMPLOYEE WITH THE B.L.M I RECEIVED MANY CERTIFICATES AND HONORS AND RECOGNITION THAT FACT AND WAS DENIED REINSTATEMENT TODAY BY MAIL -- THANK YOU -- UM, FOR SOME UNKNOWN REASON.

ANYWAY, I THINK IT MIGHT HAVE SOMETHING TO DO WITH THE FACT OF MY POSITION POLITICALLY OBJECTING TO A PROJECT SUCH AS CADIZ SO VOCIFEROUSLY OUTSPOKENLY.

UM, MY E-MAIL ADDRESS IS PARDNERS AT C-T-A-Z D COM. AND ANYBODY CAN E-MAIL ME AND GET TOGETHER WITH TH ASSOCIATION THAT WE'RE TRYING TO PULL TOGETHER DURING TH REVIEW PERIOD.

M3-3

UM, PEOPLE ALL OVER SOUTHERN CALIFORNIA ARE GO

TO BE AFFECTED. PEOPLE FROM ARIZONA ARE GOING TO BE AFFECTED, FROM MEXICO ARE GOING TO BE ADVERSELY AFFECTED. ALL OF THESE PEOPLE ARE GOING TO BE ADVERSELY AFFECTED.

IF YOU'D LIKE TO GET INVOLVED, GIVE ME A CALL OR E-MAIL ME OR WRITE TO ME.

AND YOU CAN PUT MY E-MAIL ADDRESS UP THERE ALONG WITH THE B.L.M.'S, PLEASE.

COULD WE HAVE AN ANSWER TO THE QUESTION BEFORE?

MS. SALENIUS: WE ARE GOING TO TAKE A BREAK AFTER. AS I MENTIONED EARLIER, WE'RE GOING TO TAKE A BREAK AFTER WE GET THE TESTIMONY SO THAT WE CAN DETERMINE WHICH QUESTIONS WE ARE ABLE TO ANSWER -- BECAUSE WE HAVE INFORMATION THIS EVENING -- AND WHICH QUESTIONS ARE GOING TO HAVE TO APPEAR IN THE FINAL ENVIRONMENTAL DOCUMENT WITH ANSWER. BECAUSE SOME OF THE QUESTIONS YOU ASK, WE MAY NOT HAVE THE TECHNICAL EXPERTISE TONIGHT TO BE ABLE TO ANSWER THEM.

MS. LOPEZ: IN OTHER WORDS, IF WE ASK A QUESTION, YOU ARE NOT GOING TO ANSWER?

MS. SALENIUS: THERE MAY BE SOME QUESTIONS THAT WE DO NOT HAVE THE TECHNICAL EXPERTISE TO RESPOND TO THIS EVENING.

THERE WERE A LOT OF GEOHYDROLOGISTS WHO WORKED ON THIS PROJECT, A LOT OF BIOLOGISTS.

THIS IS NOT A TECHNICAL QUESTION. GO THROUGH

YOUR QUESTIONS AND THEN WE WILL BE ABLE TO DETERMINE WHIC
ONES WE CAN ANSWER.

RUTH LOPEZ: I HAVE TO HAVE AN ANSWER TO THAT BEFORE I CAN GO ONTO MY NEXT QUESTION; WHO IS GOING MAKE THE DECISION ON THIS PROJECT? IF WE DON'T KNOW THAT HOW CAN WE EVEN -- M3-4

MS. SALENIUS: WE WILL TAKE THAT INTO CONSIDERATION WHEN WE GO TO ANSWER THE QUESTIONS. WE HAV TO GET YOUR QUESTIONS AND THEN WE ARE GOING TO TAKE A BRE AND THEN WE WILL RESPOND TO YOUR QUESTIONS TO THE EXTENT THAT WE ARE CAPABLE OF RESPONDING THIS EVENING.

RUTH LOPEZ: OKAY. WHAT -- THE THIRD QUESTION THEN IS ACTUALLY THE SECOND QUESTION THAT YOU HA NUMBERED FOR NUMBER THREE, WHAT IS THE CRITERIA FOR EVALUATING WHETHER OR NOT THIS PARTICULAR DOCUMENT, WHICH THE METROPOLITAN WATER DISTRICT OF LOS ANGELES AND CADIZ, ALONG WITH THE BUREAU OF LAND MANAGEMENT HAVE -- HAS WRITTEN? WHAT IS THE CRITERIA FOR EVALUATING WHETHER IT' SUFFICIENT AND ADEQUATE? M3-5

DO YOU HAVE C.F.R. OR STATE LAW REQUIREMENTS?

WHAT REQUIREMENTS ARE YOU GOING TO GO BY?

MY FOURTH QUESTION IS WHAT NEW LAWS HAVE GONE I EFFECT SINCE THE LAST TIME YOU'VE HAD A PUBLIC MEETING WHICH WOULD AFFECT THIS PROJECT? M3-6

WHAT NEW LEGISLATION WAS PASSED ON A STATE AND

FEDERAL LEVEL? AND WAS THIS LEGISLATION INCLUDED IN THE DOCUMENT THAT IS -- HAS BEEN SENT TO THE PUBLIC FOR REVIEW? THE NEW STATE LAWS AND FEDERAL LAWS THAT WOULD -- REGULATIONS THAT WOULD AFFECT THIS PARTICULAR PROJECT AND -- AND WHAT EFFECT THE METROPOLITAN WATER DISTRICT'S POSITION CONCERNING MANAGEMENT OF THE DESERT WATER?

WHICH LEADS ME TO THE FIFTH QUESTION, AND THAT IS WHO OWNS THE WATER THAT IS BEING SURPASSED -- SURPASSED FOR TRANSFER FROM ONE LOCATION TO ANOTHER?

AND WHAT RIGHT DO THE PEOPLE HAVE WHO HAVE HISTORICALLY MANAGED AND CONTROLLED THE WATER THAT HAVE SEEMED TO BE LEFT OUT OF THIS, UM, DECISION-MAKING PROCESS AS FAR AS THEIR RIGHTS TO THE WATER?

MS. SALENIUS: OKAY.

RUTH LOPEZ: AND CONCERNING THE WATER THAT WOULD BE DELIVERED FROM THE COLORADO RIVER UNDER THE, UM, SUBJECT OF HAZARDOUS AND HAZARDOUS MATERIALS, UM, THE ONLY THING THAT WAS SPOKEN ABOUT TONIGHT -- AND I'M NOT SURE EXACTLY WHAT'S BEEN WRITTEN IN THE DOCUMENT BECAUSE IT'S TOO EARLY FOR A LOT OF US TO HAVE REVIEWED IT SINCE WE JUST, UM, GOT A COPY OF IT RECENTLY, AND IT'S QUITE LARGE. WHAT, UM, DOES THE DOCUMENTS SAY OR SINCE IT WAS LEFT OUT OF THE LITTLE INTRODUCTION TONIGHT CONCERNING THE, UM, THE AMOUNTS OF RADIOACTIVITY IN THE COLORADO RIVER WATER THAT WOULD BE TRANSPORTED TO THE DESERT AQUEDUCT FIRST AND WHAT

EFFECT WOULD THIS HAZARDOUS MATERIAL OR RADIOACTIVE MATERIAL HAVE UPON THE EXISTING, UM, PRISTINE WATER THAT IN OUR DESERT AREAS?

IF IT WAS NOT MENTIONED IN THE DOCUMENT, I WOUL THINK THAT THAT WOULD BE ONE THING THAT WOULD BE CONSIDER INADEQUATE -- INADEQUATELY REVIEWED AND CONSIDERED.

M3-9

AND, YOU KNOW, DO YOU HAVE AS FAR AS HAZARDOUS EFFECTS TOO, I DIDN'T HEAR MR. DIRK -- DIRK REED -- MR. REED -- DIRK REED -- MR. DIRK REED SAY ANYTHING ABOUT THE HAZARDOUS EFFECTS OF, UM, THE LACK OF WATER THAT'S REACHING MEXICO OR THE GULF OF CALIFORNIA. AND WHAT EFFE IT WOULD HAVE ON THE WILDLIFE THERE AND THE OTHER NATURAL RESOURCES -- FLORA-FAUNA (PHONETIC).

M3-10

THE COURT REPORTER: I AM SORRY. I COULDN HEAR YOU.

RUTH LOPEZ: -- TO YOUR HEALTH, SAFETY.

AND I'D LIKE TO SEE A COMPARISON OF THE AMOUNT WATER, UM, THAT'S PROPOSED TO BE HEISTED, SIPHONED AND STOLEN FROM US OUT HERE LIVING OUT HERE AND TRANSFERRED T THE LOS ANGELES RESIDENTS.

M3-11

I'D LIKE TO SEE A COMPARISON OF THAT AMOUNT OF WATER WITH OTHER WATER HEISTS IN THE PAST SUCH AS -- AND PLEASE USE THE WORD HEIST OR THEFT OR SOMETHING TO THAT EFFECT BECAUSE, OTHERWISE, YOUR E.I.S. WOULD BE CONSIDERE INADEQUATE BY THOSE OF US WHO ARE REDEEMING, WHO WANT TO

HONEST AND FORTHRIGHT.

PLEASE COMPARE THAT AMOUNT OF WATER WITH THE AMOUNT OF WATER THAT HAS BEEN HISTORICALLY TAKEN FROM OTHER PARTS OF THE COUNTRY SUCH AS OWEN'S VALLEY, HOW MUCH MORE WATER ARE YOU TAKING FROM THIS AREA THAN WHAT YOU WERE EVEN TAKING IN OWEN'S VALLEY?

I MEAN, M.W.D. IS ALREADY TAKING WATER FROM THE COLORADO RIVER AND THE TOTAL AMOUNT, VOLUME WISE, OR ACRE-FEET IN COMPARISON TO WHAT'S BEEN TAKEN FROM OWEN'S VALLEY. JUST SO PEOPLE CAN GET AN IDEA OF, YOU KNOW, WHAT A -- WHAT A HORRIBLE IMPACT THAT THIS PROJECT IS GOING TO HAVE ON THE LOCAL RESIDENTS HERE.

I KNOW THAT THERE'S A LOT OF PEOPLE IN THE AUDIENCE HERE WHO DON'T LIVE HERE, WHO ARE FROM OTHER PLACES, AND THEY MAY HAVE NEVER EVEN CONSIDERED THE FACT THAT THIS IS, YOU KNOW, A THEFT OF LOCAL RESOURCES. BUT MAYBE AFTER TONIGHT, AND MAYBE, YOU KNOW, SOMEWHERE IN YOUR ENVIRONMENTAL DOCUMENT, YOU CAN MENTION THAT.

MAYBE AS YOU CAN CHANGE THE TITLE TO THE MORE HONESTLY REFLECTED, THAT WHAT IS ACTUALLY HAPPENING INSTEAD OF THE DRY-YEAR SUPPLY PROGRAM, CADIZ GROUNDWATER STORAGE, MAYBE YOU CAN SAY THE DOMENIGONI (PHONETIC) DAM EAST VALLEY RESERVOIR RECREATION PROJECT. YOU KNOW, I THINK THAT WOULD MORE ADEQUATELY DESCRIBE THE PROJECT. OR MAYBE EVEN THE COLORADO RIVER DESERT PRISTINE DESERT WATER RESOURCES

M3-12

HEIST. THAT MIGHT MORE ADEQUATELY REFLECT THE PROJECT.

CHANGE OF TITLE. IT'S A VERY DISHONEST MISLEADING TITLE FOR YOUR -- FOR YOUR PROJECT. DRY-YEAR SUPPLY PROGRAM IS A LITTLE BIT OF A JOKE.

M3-13

WHAT ABOUT PEOPLE IN MEXICO? WHAT ABOUT THEIR DRY-YEAR SUPPLY? THEY'VE GOT A DRY-YEAR FOR YEARS AND YEARS AND YEARS NOW, AND TO CALL THIS A DRY-YEAR SUPPLY PROGRAM IS VERY VERY VERY MISLEADING. IT'S MORE OR LESS LET'S KILL OFF THE MEXICANS. I MEAN, THAT WOULD BE A GOO HONEST TITLE FOR THIS PROJECT.

HOW ELSE ARE WE GOING TO KILL THE MEXICAN PEOPI I MEAN, LET'S GO TO WAR AGAINST MEXICO. LET'S TAKE THEM ON. THAT IS WHAT THIS IS ENDING UP BEING. LET'S TAKE MO COLORADO RIVER WATER THAT WILL NEVER EVER REACH THOSE PEOPLE.

I MEAN, DOES ANYBODY ELSE WANT TO SPEAK YET? H ANYBODY ELSE SUBMITTED A CARD?

MS. SALENIUS: IF ANYBODY HAS SUBMITTED A CARD, YOU SURE CAN AT ANY TIME --

M3-14

RUTH LOPEZ: BY THE WAY, THIS IS NOT MY COMPLETE COMMENTS REGARDING THE ADEQUACY OF THIS DOCUMENT I MEAN, I AM JUST SPEAKING OFF THE TOP OF MY HEAD RIGHT NOW. I DON'T HAVE ANY NOTES. I HAVEN'T REALLY EVEN LOOK AT THIS REPORT.

MS. SALENIUS: ANYONE HAS A RIGHT TO SUBMI

ANY NUMBER OF COMMENTS THAT THEY WISH TO.

RUTH LOPEZ: WOULD YOU GO INTO DETAIL ABOUT HOW MUCH WATER IS BEING PROPOSED TO BE TAKEN FROM WARD VALLEY IN PARTICULAR? UM, CAN WE HAVE A SECOND CHANCE?

MS. SALENIUS: PARDON?

RUTH LOPEZ: I MEAN, ARE WE ONLY LIMITED TO --

MS. SALENIUS: THIS IS THE PART OF THE PUBLIC HEARING RIGHT NOW?

RUTH LOPEZ: I'D LIKE TO HEAR FROM SOMEBODY ELSE, IF THERE'S ANY COMMENTS. YOU KNOW, I'M SURE I'M NOT THE ONLY ONE HAS COMMENTS.

WELL, WHAT ABOUT THE OTHER PEOPLE? DO YOU HAVE ANYTHING IN THAT DOCUMENT ABOUT HOW THIS WATER TRANSFER PROJECT IS GOING TO AFFECT THE QUALITY OF THE WATER IN -- IN WELLS THAT ARE IN THE CADIZ AREA? AND DO YOU MENTION THE LAND OWNERS OUT THERE, WHOSE WELLS WOULD BE AFFECTED? ARE THOSE PEOPLE MENTIONED? IS THERE ANYTHING THAT'S GOING TO BE OFFERED TO THEM FOR COMPENSATION FOR ANY ADVERSE IMPACT THIS PROJECT MIGHT HAVE UPON THEIR -- THEIR EXISTING RESOURCES? I MEAN, I DIDN'T SEE IT UP THERE ON YOUR LIST OF ITEMS THAT WOULD BE ADDRESSED.

ALSO, THIS IS KIND OF AN ASIDE, JUST UNTIL SOMEBODY ELSE WANTS TO SPEAK, BUT WHEN MR. REED SPOKE OF THE PALEONTOLOGICAL RESOURCES, HE MENTIONED THOSE ARE THE

BONES -- THOSE ARE THE BONES -- SEVERAL TIMES. I'D JUST
LIKE TO SAY THAT THAT IS -- ACTUALLY INVOLVES MORE THAN
BONES. AND I WAS KIND OF SURPRISED WHEN HE SAID THAT TH
WERE -- WERE -- WERE BONES OUT THERE AND IN THESE DRY LA
IN THE DESERT. AND I WONDERED, YOU KNOW, I REALIZE THAT
THERE WERE -- THERE WERE FOSSILS THAT WERE FOUND OVER IN
THE DOMENIGONI (PHONETIC) EAST VALLEY RESERVOIR AREA THA
WAS, UM, HEADLINES IN THE LOCAL PAPERS IN SAN BERNARDINO
AREA, BUT ARE YOU FINDING THE SAME TYPE OF PALEOLOGICAL
RESOURCES IN THESE OTHER DRY LAKES ALREADY? I'M JUST OU
OF CURIOSITY? PREHISTORIC ARTIFACTS, MAMMOTHS.

M3-17

UM, IF THIS -- IF THIS PROJECT IS REVIEWED AND
DETERMINATION IS MADE THAT -- THAT IT SHOULD GO FORWARD
PROCEED, COULD THAT HAPPEN EVEN THOUGH THERE ARE ADVERSE
IMPACTS THAT CANNOT BE MITIGATED? WILL THAT HAPPEN WHET
THERE'S UNMITIGABLE IMPACTS OR NOT?

M3-18

AND, UM, HOW MUCH MONEY HAS ALREADY BEEN SPENT
THIS PROJECT TO DATE? AND OUT OF WHAT FUNDS HAS THE
FUNDING COME FROM? IS IT PUBLIC FUNDS?

M3-19

I'D LIKE TO KNOW EXACTLY WHERE THE MONEY'S COM
FROM FOR PROCESSING THIS MONUMENTAL ENVIRONMENTAL PROJECT
DOCUMENT.

M3-20

AND, OH, IF -- IF A DETERMINATION IS MADE THAT
THERE IS IMPACTS OR NO IMPACT, OR WHATEVER THE
DETERMINATION IS MADE, AND SOMEBODY DECIDES -- WHOEVER TH

MAY BE THAT MAKES A DECISION -- DECIDES THAT YES, THIS PROJECT IS A GO, EXACTLY WHEN WOULD THAT DECISION BE MADE? OR WHAT IS THE PREDICTED PROJECTED TIME FRAME THAT THAT DECISION WOULD BE MADE?

AND, ALSO, I'D LIKE TO SEE IN THE ENVIRONMENTAL DOCUMENT, IF IT'S NOT ALREADY THERE, THE ISSUE ADDRESSED AS TO HOW THE PUBLIC CAN CONTEST OR APPEAL THE DECISION IF IT IS, UM, IN FAVOR OF PROCEEDING, THE APPEAL PROCESS.

AND I'D LIKE TO KNOW IF THE PUBLIC HAS -- WAS TO APPEAL THIS PROJECT, ARE THEY GOING TO HAVE TO DO IT THROUGH THE STATE AND THE FEDERAL GOVERNMENT AND THROUGH SOME OTHER, UM, MUNICIPALITY SUCH AS M.W.D.?

I MEAN, HOW MANY APPEAL PROCESSES WOULD THE PUBLIC BE REQUIRED TO TAKE ON IF THEY WANTED TO OBJECT, AND WOULD AN APPEAL PROCESS BE NECESSARY BEFORE, UM, BEFORE A PUBLIC -- A MEMBER OF THE PUBLIC OR A GROUP COULD -- COULD ACTUALLY GET A JUDICIAL DETERMINATION?

WHAT -- WHAT I'M SAYING IS WHAT -- WHAT IS THE ALTERNATIVE HERE FOR US? DO WE HAVE -- DO WE STAND A CHANCE? I MEAN, USUALLY WHEN THE FEDERAL GOVERNMENT AND STATE GOVERNMENT DECIDES TO BLOW THIS MUCH MONEY ON A PROJECT, THEY TELL US.

EVERYBODY SEEMS TO THINK THIS IS A DONE DEAL AND I -- YOU KNOW, I'D LIKE THE PUBLIC TO KNOW THAT IT'S NOT ALWAYS A DONE DEAL, AND THAT THEY CAN STOP THIS. AND WE

STOPPED WARD VALLEY, AND WE CAN STOP THIS.

AND BUT HOW, YOU KNOW, HAS THERE BEEN CHANGES THE LAW THAT MAKE UP -- MAKE THAT MORE DIFFICULT? AND I THINK THAT THE GOVERNMENT, I.E., THE PEOPLE WHO ARE WRIT THIS ENVIRONMENTAL IMPACT STATEMENT, HAVE A DUTY TO THE PUBLIC TO LET THEM KNOW WHAT THEY CAN DO TO STOP THIS PROJECT.

M3-21

I MEAN, THERE IS -- YOU KNOW, IT SEEMS TO BE TAKEN FOR GRANTED THAT THIS PROJECT IS GONNA HAPPEN AND, UM, WE WANT -- I'D LIKE TO KNOW -- AND I KNOW OTHER PEOP WOULD LIKE TO KNOW -- HOW THEY CAN STOP IT.

M3-22

HOW MANY -- HOW MUCH -- HOW MUCH MONEY HAS BEE SPENT? HOW MANY SHARES HAVE BEEN GIVEN TO VARIOUS PUBLI OFFICIALS, LOCAL OFFICIALS, COUNTY OFFICIALS?

M3-23

I NOTICE THAT THERE WERE SOME OFFICIALS THAT W APPOINTED BY GRAY DAVIS WHO HAVE SHARES IN THE CADIZ LAN COMPANY. I'D LIKE TO HAVE A LIST OF ALL THE PEOPLE WHO HAVE SHARES IN THE CADIZ LAND COMPANY. I THINK THAT WOU BE VERY REVEALING.

M3-24

WERE THERE COMMENTS AT THE OTHER LOCATIONS WHE YOU HELD PUBLIC MEETINGS? AND WHAT WERE THEY?

AND MY FINAL QUESTION FOR RIGHT NOW IS WHY WER NOT THE PUBLIC COMMENTS THAT WERE FORTHCOMING PRIOR TO TONIGHT, SUCH AS THE LAST MEETING YOU HELD HERE AND THE MEETINGS YOU HELD IN OTHER PLACES, WHY WERE THESE COMMEN

NOT INCLUDED IN THE DRAFT? AND WHY WEREN'T THEY ADDRESSED IN THE DRAFT?

MS. SALENIUS: OKAY.

RUTH LOPEZ: ONE MORE THING. LET'S JUST MAKE IT 20. I'M VERY SADDENED TO SEE THAT THERE WAS NO ANNOUNCEMENT OR ANNOUNCEMENT IN THE LOCAL NEWSPAPER HERE. THE NEWSPAPER DIDN'T EVEN REPORT THAT THERE WAS A MEETING. AND I THINK THAT IT'S SHAMEFUL THAT THE LOCAL PEOPLE HERE IN THIS ENTIRE VALLEY WERE NOT NOTIFIED BY ANNOUNCEMENT IN THE PAPER -- THAT A MEETING AT THE NEW COLLEGE HERE IN TOWN WAS ANNOUNCED, HEADLINED, FRONT PAGE, WEDNESDAY, BUT THERE WAS NOTHING REGARDING THIS MEETING FOR TONIGHT.

AND, YOU KNOW, I CAN EVEN GET AN ANNOUNCEMENT FOR MY GIRL SCOUT EVENTS IN THE LOCAL PAPER. AND IF I REALLY PRESS IT, HE MIGHT EVEN PUT IT ON THE FRONT PAGE, BUT THERE WAS NOTHING.

IF YOU WOULD HAVE JUST CALLED THE NEWSPAPER AND TOLD THEM WE ARE GOING TO HAVE A MEETING, COULD YOU PLEASE MAKE AN ANNOUNCEMENT, THEY PROBABLY WOULD HAVE -- I BELIEVE HE WOULD HAVE ANNOUNCED IT BECAUSE HE PLAYS A -- HAS A PLACE FOR MEETINGS TO BE ANNOUNCED; AND YOU DON'T EVEN HAVE TO PAY A CENT TO GET IT ANNOUNCED.

MS. SALENIUS: ARE YOU READY FOR US TO TAKE A BREAK?

RUTH LOPEZ: YES.

MS. SALENIUS: YOU SAID THAT WAS THE LAST QUESTION?

RUTH LOPEZ: YES. I'M IN CHARGE NOW.

MS. SALENIUS: THIS PART OF THE MEETING, PUBLIC IS IN CHARGE. SO THAT'S WHY I ASKED YOU THAT QUESTION. BECAUSE I'M JUST WONDERING YOU MENTIONED THIS WAS THE LAST QUESTION.

RUTH LOPEZ: CAN WE HAVE A CHANCE TO ASK QUESTIONS WHEN THEY'RE ADDRESSING OUR QUESTIONS?

MS. SALENIUS: WE -- TYPICALLY, THAT'S NO THE WAY WE'VE BEEN RUNNING THE MEETING, BUT IT'S -- WE W SEE HOW IT GOES. OKAY?

RUTH LOPEZ: OKAY.

MS. SALENIUS: ARE WE READY FOR A BREAK? I UNDERSTAND THAT IT MAY BE TIME FOR A BREAK. AND IF YOU ARE FINISHED WITH YOUR COMMENTS, I'D BE HAPPY TAKE A BREAK.

RUTH LOPEZ: SURE.

MS. SALENIUS: WE WILL BE BACK IN ABOUT TE MINUTES.

THANK YOU.

(THERE WAS A SHORT BREAK TAKEN AT 7:58 P.M UNTIL 8:19 P.M.)

MS. SALENIUS: WE'D LIKE TO RECONVENE THE MEETING NOW. IF WE COULD HAVE PEOPLE TAKE THEIR SEATS,

PLEASE.

EXCUSE -- EXCUSE US. EXCUSE ME. WE'D LIKE TO RECONVENE THE MEETING AT THIS TIME. IF YOU COULD PLEASE TAKE YOUR SEAT. WE'D LIKE TO RECONVENE THE MEETING AT THIS TIME, IF YOU'D PLEASE TAKE YOUR SEAT.

PLEASE SIT DOWN.

THANK YOU.

OKAY. WE ARE GOING TO MAKE AN EFFORT TO TRY TO ANSWER SOME OF THE QUESTIONS, IF WE CAN.

RUTH LOPEZ: EXCUSE ME. BEFORE YOU START, I HAVE A QUESTION. UM, SOME QUESTIONS CAME UP DURING THE RECESS AND WE'RE HOPING TO GET THESE ON THE QUESTIONS TOO FOR THE PUBLIC. AND SOME OF US -- SOME OF THE PEOPLE ARE A LITTLE BIT SHY TO SPEAK OUT. I THOUGHT WITH ALL THESE OUTSPOKEN COUNCIL PEOPLE SITTING BACK HERE, THEY MIGHT BRING IT UP, BUT WE'D LIKE -- I THINK A LOT OF US WOULD LIKE TO KNOW WHO'S GETTING PAID FOR THIS WATER? WHO GETS THE MONEY FOR THE WATER? I MEAN, THAT'S THE EASIEST SIMPLEST WAY TO PUT IT. WHO IS GOING TO MAKE THE BUCK OFF THIS WATER?

NOW, AT ONE POINT, THE CITY OF NEEDLES HAD A WATER PROJECT. IT WAS NOWHERE NEAR WHAT IS BEING PROPOSED HERE -- A LITTLE WATER PROJECT -- HAD TO DO WITH DRILLING SOME WELLS IN WARD VALLEY AND SELLING IT TO THE METROPOLITAN WATER DISTRICT. AND, OBVIOUSLY, OUR LITTLE

WATER PROJECT HERE IN NEEDLES GOT STOLEN. I MEAN, IT'S OBVIOUS TO ME, MY OPINION, A LOT OF OTHER PEOPLE'S OPINI NOW -- NOW OUR PROJECT HAS BEEN TURNED INTO A MONSTER.

THIS IS WHAT IS BEING PROPOSED. WE'D LIKE TO KNOW IF THE CITY OF NEEDLES IS NOT BEING PAID, CHEMEHUEV MOHAVE OR PEOPLE HISTORICALLY USED THIS WATER, WHICH WAT IS TRIBUTARY TO OUR GROUNDWATER, OUR WELLS AND SUPPLIES, OUR WELL WATER, WHO IS GETTING PAID?

M3-26

I THINK THIS IS REALLY THE FUNDAMENTAL MOST IMPORTANT QUESTION. I GUESS IT WAS SUCH AN OBVIOUS QUESTION, DIDN'T COME TO ME AT THE FIRST PART OF THE MEETING. I THINK IT'S BEEN RAISED AT OTHER MEETINGS. D YOU RAISE IT IN THIS DRAFT? AND IF IT ISN'T DISCUSSED I THE DRAFT, I THINK THE DRAFT'S INADEQUATE AND IT NEEDS T BE ADDRESSED.

MS. SALENIUS: DIRK, WOULD YOU LIKE TO GO BACK TO THE QUESTIONS IN THE BEGINNING AND SEE -- START ANSWERING SOME OF THE QUESTIONS?

MR. REED: FIRST QUESTION HAS TO DO WITH WHO WILL MAKE THE DECISIONS ON THE PROJECT?

BASICALLY, WHAT IT GETS DOWN TO -- AND I WILL SPEAK TO IT ON THE METROPOLITAN SIDE -- METROPOLITAN IS A STATE PUBLIC AGENCY. WE HAVE 52 BOARD DIRECTORS SITTING OUR BOARD. THEY WILL MAKE THE DECISION AS FAR AS METROPOLITAN WITH RESPECT TO THIS PROJECT.

ON B.L.M. --

MS. BRADY: AND THE BUREAU OF LAND MANAGEMENT, ANY PLAN THAT CONTINUES -- A PLAN, HAVE THOSE THAT AREN'T FAMILIAR, AS WELL AS THE PLAN AMENDMENT, THIS AREA IS COVERED BY THE DESERT CONSERVATION PLAN OF 1990, IDENTIFIED CORRIDORS FOR UTILITIES, AND IT ALSO INDICATED THAT ANY -- ANY PIPELINE OF GREATER THAN INCHES THAT WAS GOING TO BE PROPOSED OUTSIDE OF THOSE, ANY OF THE DESIGNATED CORRIDORS, HAD TO GO THROUGH A PLAN -- EQUIVALENT OF A PLAN -- A PLAN PROCESS.

WE'RE EFFECTIVELY MAKING AN EXCEPTION TO THE PLAN. THIS PARTICULAR PART OF THE PIPELINE PROPOSAL IS NOT WITHIN THE CORRIDOR, SO ANY PLAN AMENDMENT DECISION ON THAT PLAN AMENDMENT IS MADE BY OUR STATE DIRECTOR, THAT'S THE ORGANIZATION OF THE B.L.M. WE HAVE STATE DIRECTORS AND THEN CALIFORNIA DESERT, WE HAVE DISTRICT MANAGER, AND THEN I'M THE FIELD MANAGER. SO IT'S TWO LEVELS ABOVE ME THAT THE DECISION IS MADE.

THE ACTUAL GRANT, THE RIGHT OF WAY GRANTS CAN BE MADE BY EITHER THE DISTRICT MANAGER OR MYSELF, BUT BECAUSE IT IS COMBINED WITH THE PLAN AMENDMENT, IT WILL PROBABLY BE THE STATE DIRECTOR.

MR. REED: BASICALLY, WHAT IS THE CRITERIA FOR EVALUATING THIS DOCUMENT, IF SUFFICIENT OR ADEQUATE ON THE STATE'S SIDE.

SYL WILL GO THROUGH A LITTLE BIT ABOUT THE CRITERIA HAVING TO DEAL WITH THE TOPICS THAT WERE DEFINE

MS. SALENIUS: BOTH THE CALIFORNIA ENVIRONMENT QUALITY ACT AND THE FEDERAL ENVIRONMENTAL AC DEFINE THE TOPICAL AREAS THAT NEED TO BE ADDRESSED IN TH ENVIRONMENTAL DOCUMENT. AND THEY'RE, FOR EXAMPLE, THE CALIFORNIA ENVIRONMENT QUALITY ACT HAS A THING CALLED A CHECK LIST THAT IS KIND OF A CATCHALL LIST OF ALL THE DIFFERENT CONCERNS THAT ONE WOULD ADDRESS.

THE LAW ALSO REQUIRES US TO GO THROUGH A PROCE ON THE FEDERAL LEVEL CALLED SCOPING. AND WHEN WE GO THROUGH THAT PROCESS, WE IDENTIFY ISSUES THAT THE PUBLIC WANTS US TO ADDRESS.

NOW, THAT WAS DONE FOR THIS PROCESS AND THE PUBLIC COMMENTS FROM THAT FIRST PROCESS ARE LISTED IN TH PUBLIC PARTICIPATION DOCUMENT WHICH WAS ONE OF THE DOCUMENTS THAT'S IN THE LIBRARIES. IT'S ABOUT AN INCH THICK. IT DISCUSSES ALL THE TOPICS THAT WERE RAISED AT MEETINGS.

SO, BASICALLY, THOSE TWO SETS OF LAWS DEFINE W WE HAVE TO PUT IN THE DOCUMENT.

ONCE THE DOCUMENT IS PREPARED, THEN IT GOES TO THE TWO AGENCIES THAT ARE THE LEAD AGENCIES AND THEIR ST AND THEIR TECHNICAL CONSULTANTS EVALUATE WHETHER THE STUDIES HAVE BEEN DONE TO PROPER TECHNICAL SUFFICIENCY.

SO YOU ARE GOING TO HAVE BIOLOGISTS LOOKING AT BIOLOGICAL STUDIES, GEOLOGY, TECHNICAL STUDIES, CULTURAL RESOURCE STUDIES. LOOKING AT STUDIES, THEY DETERMINE INTERNALLY WHETHER THAT DOCUMENT IS SUFFICIENT. WELL, AT THAT POINT, THE DOCUMENT GETS PRINTED AS A DRAFT.

AFTER THEY'VE AGREED IF IT'S SUFFICIENT AND YOU AS THE PUBLIC, GET AN OPPORTUNITY, AND ALSO OTHER AGENCIES THAT ARE OUT THERE, GET AN OPPORTUNITY TO STATE WHETHER YOU THINK THE DOCUMENT IS ADEQUATE AND PRESENT OTHER TECHNICAL INFORMATION THAT EITHER AGREES WITH OR DOESN'T AGREE WITH WHAT'S IN THE ENVIRONMENTAL DOCUMENT.

SO THAT'S KIND OF THE PROCESS.

AND, FINALLY, IT GOES TO METROPOLITAN'S BOARD AND THEY HAVE TO CERTIFY WHETHER THEY THINK THE DOCUMENT IS ADEQUATE OR NOT. SO THAT'S PART OF THE ACTION THAT THEY TAKE WHEN THEY MAKE THEIR DECISION.

ONCE THEY DETERMINE THAT THE DOCUMENT IS ADEQUATE, THEN, AND ONLY THEN, CAN THEY MAKE A DECISION ABOUT WHETHER THEY WANT TO PROCEED WITH THE PROJECT OR NOT.

MR. REED: WHAT NEW LAWS, LEGISLATION HAVE STATE AND FEDERAL -- WE WILL HAVE TO GET BACK TO YOU ON THAT ONE, NOT FAMILIAR WITH THE LAWS STATE AND FEDERAL. AND WE WILL RESPOND TO THAT ONE.

MS. SALENIUS: I AM NOT AWARE OF ANY ENVIRONMENTAL LAW CHANGES WOULD CHANGE WHAT WE'VE DONE THUS

FAR.

MR. REED: WHO OWNS THE WATER? WE WILL COMBINE THAT WITH WHAT WATER RIGHTS DO PEOPLE HAVE?

WHAT BASICALLY -- AND, AGAIN, WE'RE NOT LAWYER WE WILL GIVE YOU A MORE DETAILED ANSWER ON THAT IN THE WRITTEN RESPONSES BUT, BASICALLY, IT GETS DOWN TO OVERLY LAND OWNER HAS THE RIGHT TO USE THE WATER AS SEE FIT ON PROPERTY.

METROPOLITAN IS NOT A LAND OWNER IN THE VALLEY WE'RE SUBSERVIENT TO THEM. IF THEY WANT TO USE THE WATE FOR THEIR PROPERTY ON THEIR PROPERTY, WE CAN DO -- THEY DO WHAT THEY WANT WITH IT.

AGAIN, THAT IS WATER LAW AND THE LAWS.

AND WE'LL GET YOU A FORMAL RESPONSE IN WRITING THAT ONE.

RUTH LOPEZ: ABOVE THE LAW THEN, THEY DON JUST HAVE TO USE THE WATER ON THEIR OWN PROPERTY, THEY CA TRANSFER IT FROM ONE GROUND BASIN TO ANOTHER; IS THAT CORRECT?

MR. REED: AS I JUST MENTIONED, THERE IS OVERLYING LAND OWNERS GET TO USE THE WATER ON THEIR PROPERTY.

M3-27

METROPOLITAN IS NOT AN OVERLYING LAND OWNER. CAN TRANSFER THE PROPERTY OUT OF GROUNDWATER BASINS JUST LIKE ANYONE ELSE CAN, BUT THE OVERLYING LAND OWNERS, THE

QUESTION DEALT WITH WHAT RIGHTS DOES THE LAND OWNER HAVE.

RUTH LOPEZ: I CAN TRANSFER OUT OF MY PROPERTY AND SELL IT.

MR. REED: NEXT QUESTION HAS TO DO --

MS. SALENIUS: PARDON ME.

WE WILL ANSWER THE QUESTION IN THE FINAL RESPONSE.

RUTH LOPEZ: I THINK IT'S A FUNDAMENTAL QUESTION HERE.

MS. SALENIUS: WE'RE NOT LAWYERS. WE WILL ANSWER YOUR QUESTION.

RUTH LOPEZ: MAYBE THAT'S THE -- AN ISSUE THAT WILL HAVE TO BE LITIGATED THEN; IS THAT CORRECT?

MR. REED: HAZARDOUS EFFECTS ON THE LACK OF -- NEXT QUESTION HAS TO DO WITH HAZARDOUS EFFECTS, WHAT WE TALKED ABOUT THE LACK OF WATER REACHING --

MS. SALENIUS: GULF OF CALIFORNIA, THAT IS COLORADO RIVER ALLOCATION ISSUES USE.

MR. REED: THIS QUESTION HAD TO TALK ABOUT HAZARDOUS WASTE, HAZARDOUS MATERIALS. THERE IS DIFFERENT CATEGORIES. THAT IS A SHORT LIST OF CATEGORIES.

THE ENVIRONMENTAL DOCUMENT GOES THROUGH ALL THE CATEGORIES THAT ARE REQUIRED TO BE EVALUATED, PLUS WHAT WAS BROUGHT UP AT THE SCOPING MEETINGS. HAZARDOUS AND HAZARDOUS MATERIALS DEAL WITH SUCH THINGS AS UNEXPLODED

ORDNANCE.

WHAT QUALITY AFFECTS THE INTRODUCTION OF WATER THE GROUNDWATER BASIN, WATER QUALITY ON THE WATER ITSELF?

WE RAN NUMEROUS WATER SAMPLES ON GROUNDWATER BASINS AND NUMEROUS WATER SAMPLES OF THE COLORADO RIVER WATER AND DONE ANALYSIS ON THAT AND PRESENTED IT IN THE ENVIRONMENTAL DOCUMENT. THIS PIECE HAS TO DO WITH REGION ACTIVITY. AGAIN, I'M NOT AN EXPERT IN WATER QUALITY ISSUES, BUT THERE IS A -- THERE IS NATURALLY-OCCURRING ELEMENTS IN THE GROUNDWATER. THERE IS NATURALLY-OCCURRIN ELEMENTS IN THE SUBSURFACE SUPPLIES THAT WAS EVALUATED AN DISCUSSED IN THE ENVIRONMENTAL DOCUMENT.

DON'T KNOW THE ANSWER.

RUTH LOPEZ: WHAT ABOUT COLORADO RIVER WATER?

MR. REED: THAT IS PART OF SURFACE SUPPLIE

NUMBER ONE, WE WILL DO THAT COMPARED TO WHAT WE'RE POSING AS PART OF THIS PROJECT.

HOW MUCH WATER IN WARD VALLEY? WARD VALLEY IS NOT PART OF THE PLAN. I THINK THAT WAS ON THE BOARD. WE HAD A BOARD TO SHOW THE DIFFERENT VALLEYS. WARD VALLEY I NOT IN THIS PROGRAM. WE ARE IN FENNER VALLEY.

RUTH LOPEZ: IT IS IN THE DOCUMENT. IT'S ADDRESSED IN THE DOCUMENT. IT IS AN ALTERNATIVE.

M3-28

MR. REED: THERE IS NO WATER COMING OUT OF THIS PROGRAM FOR WARD VALLEY.

NEXT QUESTION HAS TO DO WITH THE TRANSFERENCE EFFECT; HOW WILL TRANSFER AFFECT WATER QUALITY IN WELLS?

RUTH LOPEZ: WHOSE PROJECTS ARE YOU ADDRESSING TONIGHT? I MEAN, THERE'S LIKE ALTERNATIVES PROJECT; CORRECT? I MEAN, MAYBE THE FIRST ALTERNATIVE WON'T GET SELECTED, AND MAYBE SOME OTHER ALTERNATIVE THAT INCLUDES WARD VALLEY WOULD; IS THAT CORRECT?

I MEAN, YOU'RE TRYING TO ANSWER THAT.

MR. REED: PUT THAT DOWN AS NUMBER 22.

RUTH LOPEZ: THAT'S ACTUALLY PART OF THE SAME QUESTION.

MR. REED: PART OF NUMBER 22.

RUTH LOPEZ: DON'T GET UPSET, MR. REED. I AM TRYING TO MAKE IT EASY ON YOU. I DON'T WANT TO UPSET YOU. YOU ARE NOT UPSET, ARE YOU, MR. REED?

MS. SALENIUS: EXCUSE ME.

RUTH LOPEZ: MR. REED.

MS. SALENIUS: EXCUSE ME. EXCUSE ME. IF WE CANNOT HAVE A COOPERATIVE EFFORT IN RESPONDING TO QUESTIONS AND ANSWERING QUESTIONS, AND DO IT WITHOUT INTERRUPTION, I'D LIKE MR. REED TO BE ABLE TO PROCEED WITHOUT INTERRUPTION BECAUSE WE TOOK THE TIME AND DID NOT INTERRUPT THE PUBLIC COMMENTS THAT WERE PRESENTED.

SO WHAT I'D LIKE TO DO IS ALLOW HIM TO RESPOND THE QUESTIONS, TO THE EXTENT THAT HE IS ABLE TO DO THAT THIS EVENING, AND IF THAT CANNOT OCCUR, THEN I THINK WHAT WE NEED TO DO IS SIMPLY GO BACK AND RESPOND TO EACH ONE O YOUR QUESTIONS IN DETAIL AND PRESENT THOSE RESPONSES IN O ENVIRONMENTAL DOCUMENT.

WE DON'T -- ONE OF THE THINGS THAT HAPPENS AT MEETINGS LIKE THIS IS WE ARE ACTUALLY BEING -- WE'RE EXTENDING OURSELVES BY OFFERING RESPONSES THIS EVENING.

TYPICALLY, AT A PUBLIC HEARING OF THIS NATURE, YOU JUST TAKE PUBLIC COMMENTS AND EVERYONE GOES HOME; AND SO WE'RE TRYING TO BE MORE RESPONSIVE THAN IS REQUIRED FO A PUBLIC HEARING.

SO WHAT I'D LIKE TO DO IS ALLOW MR. REED TO PROCEED. IF WE CANNOT PROCEED, THEN I'D LIKE TO ADJOURN THE MEETING AND ALLOW US TO PRESENT THE RESPONSES IN OUR FINAL ENVIRONMENTAL DOCUMENT.

THANK YOU.

MR. REED: NEXT ONE HAS TO DO WITH PALEO RESOURCES.

YOU ARE RIGHT, IT'S -- IT COVERS MORE THAN BONE MOST PEOPLE DON'T UNDERSTAND WHAT PALEONTOLOGICAL RESOURC ARE. I TRIED TO DO AS PART OF MY PRESENTATION NARROW IT DOWN TO ISSUES AND EXPLAIN IT TO THE PUBLIC IN TERMS OF THAT THEY CAN UNDERSTAND WHAT SOME OF THESE WORDS MEAN.

PALEONTOLOGIC RESOURCES COVER A LOT MORE THAN JUST BONES.

THIRTEEN -- AND ALL THE ISSUES UNDER PALEO DISCUSSED IN YOUR ENVIRONMENTAL DOCUMENT, WHAT THE EFFECTS ARE.

THIRTEEN, IF DECIDED TO PROCEED, CAN IT --

MS. SALENIUS: CAN YOU DO --

MR. REED: OKAY. WHAT THAT'S GETTING AT, AS I MENTIONED ON THE ONE BOARD, THERE'S THREE ISSUES SUCH AS PALEONTOLOGICAL RESOURCES, SIGNIFICANT AFTER MITIGATION RESOURCES ARE APPLIED.

ANSWERS IS YES, CERTAIN THINGS SUCH AS THOSE WE CAN PROCEED ON THE PROJECT BY OVERRIDING THEM. IN OTHER WORDS, WE LOOK AT OUR BOARD, THE AGENCIES THAT REVIEW THE PROJECT LOOK AT THE BENEFITS, LOOK AT THE IMPACT AND THEN DECIDE WHETHER TO MOVE ON WITH THE PROJECT AS IT IS.

HOW MUCH MONEY IS SPENT TO DATE, PUBLIC FUNDS? RIGHT NOW, EXACT NUMBER, I DON'T HAVE. APPROXIMATELY 3.2 MILLION DOLLARS WORTH OF ENVIRONMENTAL DOCUMENTATION STUDIES. THIS INCLUDES GROUNDWATER EVALUATIONS, FEASIBILITY ANALYSIS ON THE FACILITIES, BIOLOGY CULTURAL. ALL THE ISSUE ITEMS IN THE DOCUMENT COME UP TO ABOUT 3.2 MILLION DOLLARS.

IT ALSO INCLUDES STAFF TIME AND TIME OF EXPERTS FOR THESE -- FOR THESE MEETINGS ALSO.

WHEN WOULD -- HOW MUCH PUBLIC FUNDS -- METROPOLITAN HOLDS CONTRACTS ON THAT AND SPENDING THE MO OUT OF METROPOLITAN FUNDS.

MS. BRADY: CAN I ADD SOMETHING ALSO?

METROPOLITAN ALSO PAYS FOR THE -- ANY B.L.M. O OTHER GOVERNMENTAL AGENCY -- THE FEDERAL GOVERNMENT'S TI AND EFFORT ON THIS ALSO UNDER WHAT THEY CALL A REIMBURSA ACCOUNT.

MR. REED: WE DO THAT ALSO WITH COUNTIES, NOT UNCOMMON IN ORDER FOR THEM TO REIMBURSE FOR STAFF.

WHEN WOULD DECISIONS BE MADE ON THE PROJECT, T FRAME?

AND THEN THE NEXT ONE GOES HAND IN HAND WITH ISSUES OF THE PUBLIC CAN CONTEST.

REALLY, 16 OUGHT TO BE IN FRONT OF 15 BECAUSE DECISIONS, ULTIMATE DECISIONS, ON PROCEEDING WITH THE PROJECT FOLLOW ULTIMATE DECISION OF MOVING FORWARD WITH PROPER CERTIFICATION.

THE PUBLIC HAS THE RIGHT TO PROTEST AND APPEAL THOSE DECISIONS. AND THEN MOVING FORWARD ON THE PROJECT HAPPENS FOLLOWING THAT PROCESS.

THE EXACT TIME FRAMES AND DATES ON THAT, I AM THE EXPERT ON IT, BUT WHAT WE'RE LOOKING AT IS NOT A REA SHORT PERIOD. AND IT'S NOT ON COMMENT DUE DATES OF FEBRUARY 23RD, YEAR 2000, BUT WE'D HAVE TO GET BACK WITH

THE EXACT TIME FRAMES ON THAT.

BASICALLY, WHAT IT GETS DOWN TO, THERE IS TIME FRAMES IN THERE FOR PUBLIC PROTEST AND APPEALS, AND THERE IS TIME FRAMES ON PROCEEDING WITH THE PROJECT.

MS. BRADY: I CAN BE MORE SPECIFIC, IF YOU'D LIKE, WITH RESPECT TO THE FEDERAL LAW.

THE PLAN AMENDMENT, WHEN IT GOES OUT IN THE FINAL E.I.S. AND THE PROPOSED PLAN AMENDMENT, THE PUBLIC HAS 30 DAYS TO PROTEST THAT DECISION TO OUR DIRECTOR OF THE B.L.M. AND THAT CAN TAKE UP TO A YEAR TO RESOLVE, YOU KNOW, IF IT'S A VERY CONTROVERSIAL ACTION.

THEN ALSO THIS PARTICULAR CASE, ONCE THE -- IF THE ACTION, IF THE PLAN AMENDMENT IS APPROVED AND THE RIGHT-OF-WAY GRANT IS ISSUED, WHEN THE RIGHT-OF-WAY GRANT DECISION IS MADE.

THEN THERE IS A 30-DAY APPEAL PERIOD IN WHICH YOU CAN APPEAL THE DECISION IF YOU'RE AFFECTED, AND YOU'RE FOUND TO BE, YOU KNOW, THAT YOU HAVE STANDING TO APPEAL, THEN YOU CAN APPEAL THE ACTION, THE ISSUANCE OF THE GRANT TO THE INTERIOR BOARD OF LAND APPEALS. AND THAT CAN TAKE THREE TO FOUR YEARS.

WHEN HE TALKS ABOUT LONG PERIODS OF TIME, IT CAN BE EXTREMELY LONG IN CONTROVERSIAL PROJECTS.

MS. SALENIUS: THE FEDERAL -- EXCUSE ME -- THE CALIFORNIA ENVIRONMENT QUALITY ACT ALSO HAS A 30-DAY

APPEAL PERIOD FOLLOWING THE CERTIFICATION OF THE ENVIRONMENTAL DOCUMENT.

MR. REED: NEXT ONE HAS TO DO WITH HOW MAN SHARES HAS BEEN GIVEN?

AGAIN, I DON'T HAVE AN IDEA ON THAT. I DO KNOW CADIZ PUBLICLY TRADED, CO-PUBLICLY TRADED. YOU CAN BUY STOCK. I DON'T KNOW WHO OWNS WHAT.

MS. BRADY: ONE ISSUE, I DON'T KNOW ABOUT YOUR CASE, BUT FEDERAL GOVERNMENT, ALL OF THE MAJOR PLAYE IN THIS -- ALSO, I HAVE TO FILL OUT, FOR EXAMPLE, A FINANCIAL STATEMENT EACH YEAR, AND ALL OF THAT IS AVAILAB TO THE PUBLIC.

MR. REED: SAME WAY WITH THE STATE AGENCIE EVERY YEAR, WE HAVE TO FILL OUT A FINANCIAL STATEMENT EXPLAINING EXACTLY WHAT OUR MONEY IS, WHERE OUR MONEY IS.

MS. BRADY: WHAT INTEREST WE HAVE.

MR. REED: PART OF THE PUBLIC RECORD.

EIGHTEEN: WERE THERE COMMENTS AT THE OTHER MEETINGS, AND WERE THERE COMMENTS FROM OTHER MEETINGS AND DRAFTED? THESE TWO KIND OF A LITTLE BIT TOGETHER.

FIRST ONE, THE 19 ONE, COMMENTS, THERE IS A PUBLIC PARTICIPATION REPORT AVAILABLE AT THE LIBRARIES ABOUT AN INCH THICK, ALL THE COMMENTS ALSO RECEIVED ON TH PROJECT, HAS THE COMMENTS THAT WERE RECEIVED IN THE MEETINGS LISTED IN THERE. AND SO THAT'S AVAILABLE.

COMMENTS ON THE OTHER MEETINGS. BASICALLY, WE'VE HAD TWO OTHER MEETINGS ON THE PROJECT AND THERE WAS COMMENTS. THOSE ARE PART OF THE RECORD. THEY HAD TO DO DEAL -- MOSTLY DEPENDS ON WHERE YOU WERE. SALINITY ISSUES ON THE DRY LAKE BEDS, HAD TO DEAL WITH THAT ALSO ON THE GROUNDWATER ISSUES OF PUTTING WATER IN, TAKING WATER OUT. THAT IS A REASON WHY A LOT OF THE SHORT PRESENTATION DEALT WITH THOSE ISSUES IN PARTICULAR. AND THOSE WILL BE PART OF THE RECORD, AND THEY ARE BEING RECORDED HERE ALSO.

ANNOUNCEMENT, LEGAL PAPERS.

WE MAILED OUT ROUGHLY 12 TO -- 12 NEWSPAPERS ON THE PROJECT. ONE NEWSPAPER PICKED IT UP, AND THAT WAS THE SAN BERNARDINO SUN, RAN TWO ARTICLES ABOUT WHERE YOU COULD GET THE DOCUMENTS AND THE MEETINGS.

AS FOR THE LOCAL NEWSPAPER, WHY IT DIDN'T RUN IT, I AM NOT SURE, BUT WE DID -- WE DID SEND OUT TO 12 NEWSPAPERS AND -- AND SAN BERNARDINO SUN DID PICK IT UP.

ALL IN ALL ON THE PROJECT, WE MAILED OUT NOTIFICATION ON THIS MEETING. THESE MEETINGS WERE TO RECEIVE IT TO APPROXIMATELY 750 INDIVIDUALS OR AGENCIES CONCERNING THESE MEETINGS AND WHERE THE DOCUMENTATION IS LOCATED AT.

TWENTY-ONE: WHO GETS --

MS. SALENIUS: THE MONEY FOR THE WATER.

MR. REED: -- THE MONEY FOR THE WATER?

OTHER PROJECTS STILL IN TURN --

MS. SALENIUS: BEEN STOLEN AND TURNED INTO THIS PROJECT.

MR. REED: I AM NOT SURE WHAT THIS PROJECT IS.

WHAT THIS PROGRAM HAS TO DEAL WITH, HAS TO DEAL WITH VERY DIFFERENT ISSUES SUCH AS STORAGE OF WATER, THE USE OF STORAGE OF THAT WATER, TAKING THAT STORAGE, STORIN GROUNDWATER BASIN, EXTRACTING THAT WATER, PUTTING IT BACK IN THE AQUEDUCT.

WHEN WE STORE THE WATER, PUTS IT IN THE GROUND, THEY OPERATE THAT. WHEN WE HAVE TO HAVE THE WATER RETURNED, WE PAY CADIZ AND THEY GET THE WATER BACK TO US.

AS TO THE TRANSFER OF WATER, AGAIN, THE SAME THING THERE. WHAT WE'RE LOOKING AT IS WE PAY CADIZ FOR T WATER OF -- TRANSFER OF WATER THAT'S COMING OUT OF THE GROUND AND BEING RETURNED TO THE AQUEDUCT ALSO.

RUTH LOPEZ: WHAT ABOUT THE COLORADO RIVER WATER? YOU DON'T PAY THE BUREAU OF RECLAMATION FEDERAL GOVERNMENT FOR THAT?

M3-29

MR. REED: NOT THAT I'M AWARE OF. I AM NO POSITIVE ABOUT THAT.

RUTH LOPEZ: IS THAT IN THE DOCUMENT?

WHAT ABOUT THE WATER THAT'S BEING --

MS. SALENIUS: WE WILL GET AN ANSWER ON TH

ISSUE FOR YOU AND PUT IT IN THE FINAL.

MR. REED: THERE ARE -- THERE ARE OTHER --

MS. SALENIUS: ALTERNATIVES.

MR. REED: -- ALTERNATIVES THAT USE WARD VALLEY. THE ANSWER IS IN THE DOCUMENT. THE DOCUMENT SPECIFIES THE PREFERRED ALTERNATIVE, WHICH ALTERNATIVES WE'RE MOVING FORWARD WITH THAT WE'RE ASKING COMMENTS ON.

THAT IS THE CADIZ PROJECT, THE CADIZ GROUNDWATER DRY-YEAR PROJECT.

WARD VALLEY WAS ONE OF THE ALTERNATIVES EVALUATED. WHAT WE SAID IN THIS DOCUMENT, WE SPECIFIED WHICH ALTERNATIVE THAT WE'RE PROCEEDING WITH, WHICH ALTERNATIVE IS ON THE TABLE FOR CONSIDERATION.

MS. SALENIUS: OKAY.

I'D LIKE TO THANK YOU ALL FOR PARTICIPATING IN THE MEETING THIS EVENING.

I WANT TO REMIND YOU THAT THE PUBLIC COMMENT PERIOD WILL END ON FEBRUARY 23RD, 2000.

AND IF YOU WISH TO MAIL IN ANY COMMENTS, AGAIN, WE HAVE THE STAMPED COMMENT CARDS AT THE TABLE. AND WE HAVE UNSTAMPED CARDS THAT HAVE THE MAILING ADDRESSES FOR COMMENTS.

COMMENTS WILL BE MAILED TO JACK SAFELY, WHOM I INTRODUCED EARLIER AT METROPOLITAN, AND ALSO JIM WILLIAMS, B.L.M., IN THE RIVERSIDE OFFICE. HE WILL BE THERE FOR

APPOINTMENT FOR RECEIVING COMMENTS FROM THE B.L.M.

RUTH LOPEZ: WE HAVE THE ADDRESSES ON THE BOARD SO THAT WE CAN --

MS. SALENIUS: IF YOU JUST TAKE ONE OF THE CARDS, THEY'RE PRINTED RIGHT ON THE CARDS. ANYONE CAN TA THEM. TAKE EXTRA ONES, GIVE THEM TO YOUR FRIENDS.

(THE MEETING CONCLUDED AT 8:43 P.M.)

CERTIFICATE OF REPORTER

STATE OF ARIZONA)
)
COUNTY OF MOHAVE)

I, LINDA S. LANE, C.C.R., R.P.R., DO HEREBY CERTIFY THAT I TOOK DOWN IN SHORTHAND (STENOTYPE) ALL OF THE PROCEEDINGS HAD IN THE ABOVE-ENTITLED MATTER AT THE TIME AND PLACE INDICATED, AND THAT THEREAFTER SAID SHORTHAND NOTES WERE TRANSCRIBED INTO TYPEWRITING AT AND UNDER MY DIRECTION AND SUPERVISION, AND THE FOREGOING TRANSCRIPT CONSTITUTES A FULL, TRUE AND ACCURATE RECORD OF THE PROCEEDINGS HAD, ALL DONE TO THE BEST OF MY SKILL AND ABILITY.

IN WITNESS WHEREOF, I HAVE HEREUNTO AFFIXED MY HAND THE 4TH DAY OF FEBRUARY, 2000.

COPY

Linda S. Lane

LINDA S. LANE, C.S.R., R.P.R.
CALIFORNIA C.C.R. #7300

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
COMMENT CARD

PLEASE PRINT

Do you want to speak?
☒ Yes ☐ No ☐ Did not attend meeting

Name DAVID FICK
Address HC-1 BOX 7216
City, State, Zip JOSHUA TREE CA 92252
Phone No. (optional) (760) 366-8862
Organization (if applicable) DESERT ENVIRONMENTAL RESPONSE TEAM
Comments DEPENDING ON EARLIER COMMENTS AND ABOUT THE COLORADO RIVER T.D.S ITS EFFECT ON WATER PERCOLATION REPEAT OF QUESTION - WHO HAS FINAL SAY OF WATER QUALITY GOING INTO AQUIFER

M4-1

Thank you. Please return this card or call Jack Safely, Metropolitan Water District, at 213-217-6981, or James Williams, Bureau of Land Management, at 909-697-5390 by February 23, 2000.

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
COMMENT CARD

PLEASE PRINT

Do you want to speak?
☒ Yes ☐ No ☐ Did not attend meeting

Name Susan Reilly
Address P.O. Box 167
City, State, Zip Twentynine Palms, CA 92277
Phone No. (optional)
Organization (if applicable)
Comments Importance of keeping aquifer from being dried up.

M4-2

Thank you. Please return this card or call Jack Safely, Metropolitan Water District, at 213-217-6981, or James Williams, Bureau of Land Management, at 909-697-5390 by February 23, 2000.

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
SIGN IN SHEET

December 15, 1999 – Cadiz Ranch

PLEASE PRINT

Name Randy Hill
Address 17617 Crown Valley Ct
City, State Apple Valley, CA Zip 92307
Phone number (optional)
Organization (if applicable) VVWD

Name DENNIS DOLESHAL
Address PO BOX 507
City, State CADIZ CA Zip 92304
Phone number (optional) 774 0201
Organization (if applicable)

Name [illegible]
Address PO Box 105
City, State Amboy, Ca. Zip 92304
Phone number (optional)
Organization (if applicable)

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CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
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December 15, 1999 - 29 Palms

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CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
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SECTION 3

MASTER RESPONSE NO. 1 - AIR QUALITY

This master response addresses two types of potential impacts to air quality in the Mojave Desert region that were mentioned as matters of concern by commentors on the project. First, potential impacts to air quality due to the operation and maintenance of project spreading basins. Second, potential impacts to air quality (increase in the frequency or magnitude of wind blown dust) as a result of lowering brine levels beneath Bristol or Cadiz dry lake due to project operations.

POTENTIAL IMPACTS TO AIR QUALITY DUE TO THE OPERATION AND MAINENANCE OF PROJECT SPREADING BASINS

The project spreading basins will be composed of individual earthen berm cells ranging in size from 10 to 15 acres encompassing a total area of 390 acres. The project spreading basins are described in Section 4.6.1 of the Final EIR/EIS, Volume 1, and their location is shown on Figure 4-15. Spreading basin operation and maintenance is described in Section 4.7.1. A Cadiz Project pilot spreading basin test was conducted at the proposed location of the project spreading basins. For information regarding the pilot spreading basin test, see the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Groundwater Resources Report (Report No. 1163) Volume I.

Estimates of the potential impact to air quality from the maintenance of the spreading basins (removal of accumulated sediment) are included in the Final EIR/EIS, Volume 1, Section 5.6.4. Sediments are anticipated to accumulate in the spreading basins from three sources: 1) sediments deposited from Colorado River Aqueduct water delivered to the spreading basins, 2) sediments from the deposition of particulate matter from the atmosphere (wind blown dust) that will accumulate when spreading basins contain water, and 3) algae that will grow within the spreading basins when they contain water. These sediments will remain on the dry surface of the basins when they empty through percolation of the water. If not removed, these materials would reduce the percolation rate of the spreading basins. For this reason, the accumulated sediments will be removed prior to refilling the spreading basins. In this process, sediments will be removed by heavy equipment to a depth of approximately one-half inch just prior to refilling of a cell. The procedures described below will be implemented to minimize the amount of dust emissions during these operations. The sediment removal process will be conducted only as required prior to commencement of spreading operations within specific cells.

The removed material will be loaded into haul trucks by a front-end loader for transport and disposal at the Cadiz agricultural holdings. PM_{10} emissions during these operations include:

- Scraper exhaust
- Fugitive emissions from the scraper operation
- Front-end loader exhaust
- Fugitive emissions from dumping material into the haul trucks
- Haul truck exhaust, brake and tire wear
- Fugitive emissions from entrained unpaved road dust during haul truck travel
- Fugitive emissions when the material is unloaded from the haul trucks

Watering will be used to reduce PM_{10} emissions by an estimated 50 percent of uncontrolled emissions during sediment removal by the scraper. Additionally, the unpaved roads used by the haul trucks will be watered once each hour during truck travel to reduce fugitive PM_{10} emissions by an estimated 73 percent from uncontrolled emissions. The haul trucks will be covered when they transport material,

so emissions from loss of material are not anticipated to occur. Removed material will be disposed of at and integrated into the cultivated Cadiz agricultural landholdings. PM_{10} emissions from the sediment removal activities are estimated to be 4.8 tons per year, which is below the Mojave Desert Air Quality Management District's CEQA significance criterion of 15 tons per year, as described in Section 5.6.2 of the Final EIR/EIS, Volume 1.

A significant increase in PM_{10} emissions from current levels is not anticipated to occur through wind erosion of the spreading basins because of the formation of a crust on their surface when the basins dry out after emptying. Cadiz Project pilot spreading basin tests have shown that the sediment forms a crust on the surface because of the presence of algae and other materials. This crust reduces the susceptibility of the spreading basin surfaces to wind mobilization of dust to levels comparable to or lower than that of the surrounding desert land. For additional information, see the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Groundwater Resources Report (Report No. 1163) Volume I, page 10. Should the spreading basin crust not form as anticipated and significant increases in PM_{10} emissions occur, the Final EIR/EIS includes Mitigation Measure AQ-9:

> "Based on periodic visual inspection, soil binders will be applied to the spreading basins following water spreading operations to control wind-blown dust emissions."

In conclusion, the spreading basins will be operated and maintained in a manner that minimizes the mobilization of dust to below a level of significance.

POTENTIAL IMPACTS TO AIR QUALITY DUE TO INCREASED MOBILIZATION OF WIND BLOWN DUST ON BRISTOL OR CADIZ DRY LAKE

BACKGROUND INFORMATION

The Cadiz Project is located in the Mojave Desert Air Basin and is within the jurisdiction of the Mojave Desert Air Quality Management District. With respect to the federal ambient air quality standards, the Cadiz Project area is in a moderate non-attainment area for particulate matter (PM_{10}). Wind mobilized dust occurs as a natural condition in the East Mojave Desert and on Bristol and Cadiz dry lakes. Natural, active sand dunes occur at the margins of both dry lakes. In addition to natural conditions, four entities operate sodium chloride and calcium chloride mining and production facilities on Bristol and Cadiz dry lakes that contribute wind mobilized dust in the region. Lee Chemical operates a facility on Cadiz Dry Lake; Hills Brothers, National Chloride and TETRA Technologies, Inc operate production facilities on Bristol Dry Lake. For additional information, see Section 5.9 of the Final EIR/EIS, Volume I.

Potential impacts to air quality in the Mojave Desert region due to mobilization of wind-blown dust on Bristol and Cadiz dry lakes is addressed in Section 5.6 of the Final EIR/EIS, Volume I, and Section 2.4 of the Management Plan, Final EIR/EIS, Volume IV. It is believed that the groundwater beneath the lakebeds (brine) is sufficiently near the surface to moisten the surface soils through the capillary rise of moisture from the water table. It is also believed that brine beneath the lakebeds is hydraulically connected to the freshwater aquifer outside the dry lakes. If so, lowering of the freshwater aquifer to an extent that results in the lowering of brine levels could cause an increase in the frequency and severity of wind blown dust on the dry lakes by reducing or eliminating the capillary rise of moisture to the surface.

The potential for the Cadiz Project to increase the frequency and severity of wind mobilized dust on Bristol and Cadiz dry lakes requires: 1) project operations that result in an excessive lowering of the

groundwater levels beneath the dry lakes; 2) lowering of groundwater levels that result in the drying-out of lakebed surface soils; and 3) drying-out of dry lakebed surface soils that causes an increase in the mobilization of wind blown dust. Provisions of the Management Plan, described below, will be implemented to avoid lowering of groundwater levels beneath the dry lakes. Furthermore, monitoring of wind-blown dust at the dry lakes will be performed to identify any changes in wind-blown dust conditions. With these measures, it is not anticipated that the Cadiz Project will result in an increase in the mobilization of wind-blown dust on Bristol or Cadiz dry lake.

Some commentors have compared the Cadiz Project to the air quality problems at Owens Lake. The comparison is not appropriate. Bristol and Cadiz dry lakes have been intermittent dry lakes for thousands of years, while Owens Lake was a surface body of water that was drained (over a short period of years) by removal of surface water recharge. Dust mobilization from the surfaces of Bristol and Cadiz dry lakes already exists. The intent of the Management Plan is to prevent any increase in dust mobilization due to the operation of the Cadiz Project.

GROUNDWATER MONITORING AND MANAGEMENT PLAN

To ensure that the operation of the Cadiz Project will not cause adverse impacts to air quality or any other critical resource, the Management Plan has been incorporated into the Cadiz Project. It establishes an extensive monitoring network and the use of predictive water resources models that will provide guidance for operating the project in a manner that avoids adverse impacts to critical resources. Information collected from the monitoring network will be evaluated in conjunction with the results of water resources models to provide an early warning of the potential for adverse impacts. The provisions and requirements of the Management Plan are more fully described in the Master Response "Groundwater Monitoring and Management Plan." The particular provisions relating to the potential for air quality impacts at Bristol and Cadiz dry lakes are set forth below.

WATER RESOURCES MONITORING AND MODELING

A series of water resources models are described in Section 3 of the Management Plan. These models will be calibrated to interpret groundwater level data gathered from monitoring wells at locations between the project area and the dry lake margins and beneath the dry lakebeds. The location of the monitoring wells is described in Section 4 of the Management Plan. Well clusters on Bristol and Cadiz dry lakes will be monitored in coordination with well clusters at the dry lake margins and observation wells located closer to the project wellfield. This configuration of well clusters and monitoring wells will provide a series of early warning monitoring locations. The data collected will be used in the models to evaluate the future effect of project operations on groundwater levels beneath the dry lakes. If and when necessary, modifications to project operations will be implemented so that the project does not cause groundwater level declines beneath the surface of the dry lakes that could contribute to or cause an increase in the mobilization of dust from the surface of the dry lakebeds.

Additionally, evapotranspiration (ET) monitoring stations and surface water monitoring stations will be located on Bristol and Cadiz dry lakes. ET stations will record ambient air temperature, vertical and horizontal wind speed and direction, humidity, water vapor density, solar radiation, net radiation, soil temperature, soil heat flux and soil water content or soil suction on an hourly basis. Soil moisture data collected from the evapotranspiration stations during the pre-operational phase of the project, in conjunction with soil moisture analyses from continuous core samples collected during drilling, will provide a baseline soil moisture condition with which to compare data collected during the operational phase of the project. Soil moisture data will be evaluated in the context of measured

groundwater levels to establish a relationship between changes in groundwater levels, soil moisture content, and potential for dust mobilization.

A staff gage will be established at the location of the evapotranspiration monitoring station on each of the dry lakes. These staff gages will be established to measure surface water accumulation on the dry lakes from storm runoff. A staff gage will consist of a calibrated measuring rod vertically mounted into the lakebed surface. Surface water effects on soil moisture and shallow groundwater levels will be evaluated to distinguish natural conditions from those attributable to project operations.

METEOROLOGICAL MONITORING AND ANALYSIS

Open-air nephelometers will be installed at Bristol and Cadiz dry lakes to obtain continuous information on dust mobilization and wind speed and direction. The open-air nephelometers measure increases in light-scattering associated with dust storms. These devices will be located based on measured wind direction to match prevailing wind patterns at each dry lake. An automated digital camera will be located at each lakebed to provide periodic photographs as further documentation of the occurrence of dust mobilization from the lake. Analysis of dust mobilization and wind data will indicate whether there is any changing relationship between these two factors (reduced wind speed required for dust mobilization). This dust/wind speed relationship will also be compared with any changes in surface soil moisture of the dry lakebeds and groundwater levels beneath the dry lakebeds.

Three meteorological towers will be installed in the region for a period of at least five years to establish patterns of regional wind speed and direction. Data collection from any or all of the meteorological towers may be extended if warranted. This baseline information will be used in conjunction with lakebed data for wind speed and direction and groundwater levels and soil moisture to determine whether (a) the project could contribute to lakebed dust mobilization and (b) if any project-mobilized lakebed dust could be transported throughout the Mojave Desert region. This review will consider whether existing dust storms on the dry lakebeds occur simultaneously with regional winds that are capable of transporting lakebed dust beyond the localized lakebed areas.

Groundwater, evapotranspiration, air and meteorological monitoring information, together with the results of water resources modeling and statistical analysis of air quality and meteorological data will be used to evaluate, and as appropriate, guide the management of project operations.

ACTION CRITERIA, DECISION MAKING PROCESS AND CORRECTIVE MEASURES

The Management Plan identifies specific quantitative criteria (action criteria) that will "trigger" review to determine whether a measured change is attributable to project operations. It is the intent of the Management Plan to identify changes from natural conditions at monitoring features as early as possible in order to identify and prevent the occurrence of adverse impacts to critical resources as a result of project operations. The action criteria presented in the Management Plan are considered conservative and may be refined as data is collected during project operations.

The action criteria for potential air quality impacts at the dry lakes, is a change of six inches from the pre-operational static groundwater levels in the observation wells on the dry lakebeds. (Section 7.4, Final EIR/EIS, Volume IV) Exceeding the action criteria does not necessarily constitute an impact to a critical resource or a predictor of a potential impact. The water resources models and air quality analysis that have been calibrated with data collected during the pre-operational and operational phases of the project will be used to evaluate whether the change in groundwater level is caused by the project. If so, a further assessment will be made of whether the groundwater change is accompanied by decreases in soil moisture and an adverse change in air quality.

The assessment will consider the groundwater level, soil moisture at the lakebed surface, wind velocity data obtained from weather stations on the dry lakebeds, and dust mobilization data obtained from the instrumentation installed upwind and downwind of the dry lakebeds. Statistical analyses will be performed as described in Sections 6.4.1 and 6.4.2 of the Management Plan to identify any adverse change in air quality. The changes in airborne particulate matter that can be detected by the instrumentation depend on the level in the atmosphere. In very clean air, changes of about 20% to 30% can be detected reliably. Changes as small as 10% can be detected in air with higher particle concentrations. The differences between the downwind and upwind readings from the open-air nephelometers that can be reliably attributed to particulate matter emissions from the dry lakebed surfaces will be established during analyses of the baseline monitoring. An adverse change in air quality is defined as a measurable increase in seasonal dust mobilization, attributable to project operations, based on the analyses of baseline monitoring.

If the assessment determines that the project is causing groundwater level changes that create a potential adverse impact to air quality at a dry lakebed, then corrective measures will be implemented. Such measures include modification of project storage and extraction operations to re-establish the natural hydraulic gradient in and at the margins of the dry lakes. This may be accomplished through: (a) reduction in pumping from project wells, (b) revision of pumping locations within the project wellfield, (c) stoppage of groundwater extraction for a duration necessary to correct the predicted impact, or (d) delivery of Colorado River water, if available, to the project spreading basins.

Metropolitan will inform the Bureau of Land Management of its assessment and any corrective measures that are implemented. BLM will review Metropolitan's assessment with appropriate technical assistance from the Technical Review Panel, as necessary. The BLM will retain the authority to enforce the Management Plan through the terms and conditions of the right-of-way grant(s) for the project.

CLOSURE PLAN

Section 8 of the Management Plan requires preparation and implementation of a Closure Plan. The Closure Plan will be developed no later than halfway through the project term to ensure that no residual effects of project operations will result in adverse impacts to critical resources during or after the post-operational phase. Metropolitan will utilize the groundwater modeling and monitoring data to identify actions to be taken during the operational-phase of the project to ensure that declines in groundwater levels due to project operations will not result in adverse impacts to critical resources, including adverse impacts to air quality in the Mojave Desert region.

Metropolitan will continue monitoring groundwater levels and air quality at the dry lakebeds during the post-operational phase (a minimum period of 10 years). The term of the post-operational phase will be extended if necessary to protect critical resources, including air quality. The other provisions of Management Plan will remain in effect and run concurrently with the term of the post-operational phase.

CONCLUSION

The Cadiz Project has the potential to cause indirect effects to air quality through an increase in the frequency and severity of wind mobilized dust on Bristol and Cadiz dry lakes. This potential is related solely to the lowering of groundwater levels, and would only occur if there is a connection between groundwater levels, surface soil moisture, and wind-mobilized dust. For the protection of air quality against this potential impact, the Management Plan requires the monitoring of groundwater

levels, surface soil moisture, and wind-mobilized dust. Any potential changes in air quality due to project effects on groundwater levels at the dry lakebeds will be identified and avoided through modifications of project operations. For these reasons, it is not anticipated that the Cadiz Project will result in an increase in the mobilization of wind blown dust on Bristol or Cadiz dry lake.

MASTER RESPONSE NO. 2 - ALIGNMENT ALTERNATIVES

Several commentors have suggested that the alignment for the Cadiz Project pipeline should utilize existing utility and/or transportation corridors and avoid lands that have been designated for limited use pursuant to the California Desert Conservation Area (CDCA) Plan.

The CDCA Plan was developed by the Bureau of Land Management as a comprehensive land use management plan for BLM-managed lands in the Mojave Desert. The Plan includes classifications for allowable uses and levels of resource conservation. The Plan also identifies planning corridors for meeting the future needs for utility, communications and energy transmission lines crossing the Mojave Desert.

The CDCA Plan classifications that are pertinent to the Cadiz Project include Multiple Use Classes L and M. "Multiple-Use Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." Within Class L areas, "New gas, electric, and water transmission and trans-desert telecommunications facilities may be allowed only within designated corridors.... New distribution systems may be allowed and would be placed underground where feasible except where this would have a more detrimental effect on the environment than a surface alignment. In addition, new distribution facilities shall be placed within existing rights-of-way where they are reasonably available."

Class M (Moderate Use) is based upon "a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources that permitted uses may cause." The CDCA Plan land use classifications and designated utility corridors in the project area are shown in Figure 5.2-2 in Volume I of the Final EIR/EIS.

In response to the comments received regarding use of existing designated utility corridors, BLM and Metropolitan have considered a potential alignment that maximizes the use of such corridors. A discussion of this potential alignment has been added to Section 3.6 of Volume I of the Final EIR/EIS. There is not a CDCA Plan utility corridor that directly connects the Iron Mountain Pumping Plant with the project spreading basins or wellfield, nor is one proposed. (Final EIR/EIS, Volume I, Figure 5.2-2) For this reason the project would, under all cases, require an amendment to the California Desert Conservation Area Plan for an exception to the utility corridor requirement regardless of the route selected. However, there is a designated utility corridor for the above-ground utility lines (two 230kV power lines and telephone lines) that connect the Iron Mountain Pumping Plant with Hoover Dam. This utility corridor runs northeast from the Iron Mountain Pumping Plant across Danby Dry Lake, and eventually crosses another designated utility corridor northeast of the Old Woman Mountains Wilderness Area. This second utility corridor is used by natural gas pipelines that roughly parallel Route 66. Use of these two designated utility corridors would minimize the length of the Cadiz Project facilities that would be located outside of an existing designated utility corridor.

This potential alignment was rejected from further detailed analysis based on a review under the three technical objectives (total length, operations and maintenance, and environmental impact) used for screening alternative alignments (Final EIR/EIS, Volume I, Section 3.6.3). The length required to utilize the two utility corridors is 73 miles, compared to approximately 35 miles for the other alignments considered. The increased length would contribute to operational and maintenance impacts and costs, as well as the impacts due to construction. A portion of this potential alignment crosses the Danby Dry

Lake, which poses construction and maintenance problems that are further discussed below. Furthermore, this potential alignment creates potential environmental impacts not shared with the other alignments. It crosses approximately twice the length of Class L designated lands as the preferred Eastern Alternative alignment, and approximately 60 miles of this potential alignment falls within designated critical habitat for the desert tortoise. Each of the alternative alignments analyzed in detail in the Final EIR/EIS are outside of desert tortoise critical habitat. For these reasons, the potential alignment making maximum use of designated utility corridors was eliminated from further consideration.

Several commentors have suggested that the Cadiz Project alignment should follow the utility corridor that runs from the Iron Mountain Pumping Plant to the Arizona and California Railroad line and Cadiz-Rice Road, both of which travel to the project wellfield and spreading basin areas. The railroad and road are not located within a utility corridor designated in the CDCA Plan, so that an amendment to the Plan for an exception to the utility corridor requirement would still be necessary if the suggested route were followed.

The north half of the Eastern Alternative does follow an alignment within or adjacent to Cadiz-Rice Road and the Arizona and California Railroad line. The southern half of the Eastern Alternative follows the southern side of the Danby Valley rather than cross the Danby Dry Lake. (Final EIR/EIS, Volume I, Figure 4-2). Several alternatives were initially considered for crossing the Danby Dry Lake, but these potential alignments were eliminated from detailed consideration for both engineering and environmental reasons.

As part of the alternatives screening process, three separate pipeline design alternatives were considered for crossing Danby Dry Lake. The three design alternatives were: (1) a buried coated-steel pipeline; (2) an above-ground, coated-steel pipeline at ground level on concrete pylons; and (3) an above-ground, coated-steel pipeline constructed within a berm. As discussed below, each of these alternatives was eliminated from further consideration due to identified fatal flaws.

The underground pipeline alternative would encounter environmental and engineering problems due to high groundwater levels and de-watering requirements, extreme salinity and corrosion potential of the dry lake. Corrosive salts, as measured by total dissolved solids (TDS), reach levels in shallow groundwater under the dry lake as high as 298,000 mg/L. For comparison, TDS in seawater is generally 35,000-40,000 mg/L. This corrosive environment coupled with the higher internal pressure in the pipeline due to the lower elevation within the lakebed could lead to catastrophic failure of the pipeline. In addition, excavations would require discharging highly saline groundwater and soils during construction, which could require treatment to remove corrosive and hazardous materials. For these reasons, the buried pipeline across Danby Dry Lake alternative was eliminated from consideration.

Both of the above-ground alternatives across Danby Dry Lake would have operational and maintenance problems due to exposure to temperature extremes, inaccessibility during periods that the lakebed is covered with surface water, and disruption of surface drainage. In addition, these alternatives would create significant, permanent impacts to aesthetics in the area, would impact wildlife movement, would increase the potential for vandalism, would increase construction costs, operations costs and energy costs. For these reasons, the above-ground Danby Dry Lake crossing alternatives were eliminated from consideration.

The preferred Eastern Alternative alignment follows the existing railroad and road to the extent that is reasonably possible. Section 11 of the Final EIR/EIS, Volume I, sets forth the conclusion that the Eastern Alternative is the preferred alternative based on its lower level of impact to critical environmental criteria.

A related concern raised by certain commentors involves the undergrounding of the electric power lines that parallel the pipeline. This was considered and rejected as fatally flawed for technical reasons. Underground electric lines develop a reactive charging load that is not present in overhead lines. This phenomenon affects voltage stability and could cause system failure. Construction impacts would increase significantly due to the need to separate the underground power line from the water pipeline. The trench for the electric line would be separately constructed causing additional disturbance. Maintenance and repair of underground lines would also be difficult and cause substantial disturbance due to excavation that is not required to maintain aboveground electric lines. For these reasons, the undergrounding of power lines for the project was rejected.

Use of natural gas to power project facilities was also evaluated for potential implementation. The use of natural gas as a power source was rejected. Operation of the Cadiz Project using natural gas would require construction of a new natural gas transmission line to an existing line six miles from the project area, and a new distribution system to deliver the natural gas to each well. (Final EIR/EIS, Volume I, Section 5.9.4) The environmental impacts and increased costs of these facilities did not justify pursuing this alternative power source.

MASTER RESPONSE NO. 3 - GOVERNANCE

Comments were received that questioned the independence and timeliness of the decision-making process described in the Groundwater Monitoring and Management Plan (Management Plan) as set forth in the Supplement to the Draft EIR/EIS. That process involved initial review of data by a Technical Review Team (TRT) comprised of The Metropolitan Water District of Southern California (Metropolitan), Cadiz Inc., the County of San Bernardino, and the U. S. Department of the Interior. The same parties were also represented on a Basin Management Group (BMG) that would attempt to resolve issues based on TRT recommendations through development of a consensus. If the BMG failed to reach consensus, the BLM retained authority to enforce the Management Plan through the terms and conditions of its grant of the right-of-way for the project.

Commentors noted that the process described in the Supplement would be slow due to the need to reach a consensus before any action could be taken. Other commentors questioned the independence of the TRT and BMG with the inclusion of Metropolitan and Cadiz Inc. In response to these comments, the decision-making process in the Management Plan has been streamlined to avoid delays in implementing measures to protect critical resources. The process has also been refined to reflect the legal authority and obligations of Metropolitan and BLM to ensure that the project is operated in a manner that is consistent with the Management Plan provisions to avoid adverse impacts to critical resources. Provisions are also included for public disclosure of the data collected, the assessments and analyses that are performed, and other information regarding aspects of project operations.

Metropolitan is undertaking the Cadiz Project to provide storage for Colorado River water and indigenous groundwater for dry year supply. Metropolitan is a public agency created pursuant to California law, and is subject to the requirements of the California Environmental Quality Act (CEQA). This statute provides that measures to mitigate or avoid significant effects on the environment may be incorporated into the project plan or design. (Public Resources Code section 21081.6(b)). Accordingly, Metropolitan has incorporated the provisions of the Management Plan into the Cadiz Project. (Final EIR/EIS, Volume lV) Metropolitan is primarily responsible for operating the Cadiz Project in accordance with the Management Plan to avoid adverse impacts to critical resources.

Metropolitan's responsibilities include installation and operation of the monitoring features required under the Management Plan, and the collection of data from the monitoring features. When an action criterion has been met or exceeded, Metropolitan must notify the BLM and prepare an assessment of whether the measured change is attributable to project operations and, if so, whether it may indicate a potential adverse impacts to critical resources. Metropolitan will provide its assessment to the BLM, and will institute appropriate corrective measures when necessary to avoid the potential adverse impacts.

The Management Plan requires Metropolitan to prepare annual and five-year reports describing the data collected, modeling results, analyses performed, and project operations. (Section 6.8, Final EIR/EIS, Volume IV) These reports will be available to the public to allow review of Metropolitan's compliance with its obligations to operate the Cadiz Project in accordance with the Management Plan. As a California public agency, Metropolitan is also subject to legal requirements to make its records available for public inspection. (Government Code sections 6250 *et seq.*)

The BLM is responsible for granting a right-of-way for the Cadiz Project across federal lands in accordance with the Federal Land Policy and Management Act (FLPMA) (Title 43, United States Code, sections 1701 *et seq.*). In issuing the right-of-way, BLM is subject to the requirements of the

National Environmental Policy Act (NEPA) (Title 42 United States Code, section 4332) and the NEPA regulations (Title 40, Code of Federal Regulations, sections 1500 *et seq.*). In accordance with FLPMA and NEPA, BLM will retain the authority through the terms and conditions of the right-of-way grant to enforce the provisions of the Management Plan, and thereby avoid adverse impacts to critical resources. (*See* Title 43, United States Code, section 1765, and Title 40, Code of Federal Regulations, section 1505.3)

The BLM will receive technical support and recommendations from other federal, state and local agencies through the Technical Review Panel (TRP) described in Section 9 of the Management Plan. The agencies that will participate in the TRP include the National Park Service, the U. S. Geological Survey, and the County of San Bernardino. Other agencies may be consulted by BLM for their relevant expertise (e.g., Environmental Protection Agency for air quality, or the California Regional Water Quality Control Board for water quality). BLM and the TRP will receive data collected by Metropolitan in accordance with the Management Plan within ninety days after its collection, as well as the annual and five-year reports required in Section 6.8. In addition, the BLM may provide for public participation in its review and decision-making process when, in its discretion, it determines that it is appropriate to do so.

The BLM, together with the TRP, provides an independent, science-based review of Metropolitan's operations in accordance with the Management Plan. BLM retains the authority under the terms and conditions of the right-of-way grant to compel Metropolitan to comply with provisions of the Management Plan for the protection of the environment and identified critical resources.

The governance structure set out in the Management Plan reflects the legal authority and responsibilities of Metropolitan and the BLM. Metropolitan will be able to perform its responsibilities to implement the mitigation measures required in the Management Plan without the delays inherent in reaching a consensus among several agencies. The BLM will review Metropolitan's actions, and will retain the authority it has under federal law to require compliance with the mitigation measures in the Management Plan for the protection of the environment. The TRP ensures that there is independent and science-based input into BLM's decision-making process. Additionally, the public has the right to inspect the data. Through this process, the public can be assured that the Cadiz Project is operated in accordance with the Management Plan, and that adverse impacts to critical resources are avoided.

MASTER RESPONSE NO. 4 - GROUNDWATER MONITORING AND MANAGEMENT PLAN

BACKGROUND INFORMATION

The Metropolitan Water District of Southern California (Metropolitan) and the United States Department of the Interior, Bureau of Land Management (BLM) are jointly evaluating the implementation of the Cadiz Groundwater Storage and Dry-Year Supply Program (Cadiz Project). With this project, Metropolitan will utilize the groundwater basins underlying a portion of the Cadiz and Fenner Valleys to store Colorado River water imported from the Colorado River Aqueduct during periods of excess water supply. When needed, such as in dry years, the stored water and indigenous groundwater will be extracted and returned to the Colorado River Aqueduct for use within Metropolitan's service area. All Cadiz Project operations, including extraction of groundwater, would be governed by and subject to the provisions of the Groundwater Monitoring and Management Plan (Management Plan).

Cadiz Inc. is the owner of property overlying the groundwater basins that will be used for the project spreading basins and extraction wellfield. Cadiz cultivates approximately 1,600 acres of its property and uses groundwater for irrigation in its agricultural operations. In 1993, the County of San Bernardino approved the expansion of the agricultural operations to a total of 9,600 acres. The extraction of groundwater for use in Cadiz' agricultural operations will be performed in accordance with the provisions of the Management Plan to ensure that such extraction, in conjunction with Metropolitan's project operations, does not cause adverse impacts to groundwater-related critical resources. All aspects of the agricultural operations other than extraction of groundwater are outside the scope of the Management Plan and are subject to the terms of approval by the County of San Bernardino.

The Cadiz Project Draft EIR/EIS was circulated for public review and comment from November 26, 1999 through March 8, 2000. A number of the comments were received on the Draft EIR/EIS regarding the potential for impacts to springs, the Cadiz and Fenner groundwater basins, adjacent groundwater basins, and the potential for increased dust mobilization from Bristol and Cadiz dry lake beds. Notable among these comments was a February 23, 2000 memorandum prepared by the U.S. Geological Survey (USGS) for the BLM and appended to the National Park Service (NPS) letter of comment on the Draft EIR/EIS. This memorandum raised a number of concerns, including the amount of natural recharge to the project area.

Metropolitan and BLM convened discussions among experts to determine if the technical disagreements could be resolved. Participating in these discussions were Metropolitan, BLM, NPS, USGS, Cadiz Inc. and the County of San Bernardino. The NPS and USGS became cooperating agencies pursuant to NEPA for purposes of providing assistance based on their special expertise in groundwater and air quality issues. The USGS limited its role to providing scientific and technical support and advice to the BLM on the design of the Management Plan.

While there remains disagreement among experts regarding the amount of natural recharge to the project area, the parties agreed that the overriding objective is to ensure the protection of environmental resources, and that this objective would best be accomplished through the development and implementation of the Management Plan.

Preparation of the Groundwater Monitoring and Management Plan was identified as mitigation measure WR-1 in the Draft EIR/EIS, and it was intended that such a Management Plan would be presented in the Final EIR/EIS. In response to comments received on the Draft EIR/EIS, a Supplement to the Draft EIR/EIS (Supplement) which included the draft Management Plan was

prepared. The Supplement discussed the potential groundwater related impacts of the project in light of the Management Plan, and described the monitoring features and management procedures for operating the project without causing adverse impacts to critical resources. The Supplement was circulated for public review and comment from October 20, 2000 through January 8, 2001 to provide the public with the opportunity to review and comment on clarifications to Cadiz Project water resources information, including the Management Plan.

OUTLINE OF THE MANAGEMENT PLAN

The Management Plan, which is set out in Volume IV of the Final EIR/EIS, is an integral part of the Cadiz Project governing water storage and extraction for the Cadiz Project. The Management Plan will also ensure that groundwater use for irrigation of Cadiz Inc. agricultural operations in the Cadiz Valley is conducted without adverse impacts to critical resources.

The Management Plan is designed to ensure there will be no adverse impacts by providing "early warning" of potential adverse impacts to critical resources that could result from Cadiz Project operations. With such early warning, adverse impacts would be prevented by implementation of corrective actions.

Critical resources are identified in the Management Plan, Section 2, as follows:

- Springs Within Affected Watersheds Including Springs of the Mojave National Preserve and BLM-Managed Lands
- Aquifer System
- Brine Resources of Bristol and Cadiz Dry Lakes
- Air Quality in the Mojave Desert Region.

To accomplish the goal of providing an early warning of potential impacts, the Management Plan requires a comprehensive network of monitoring and data collection facilities. The monitoring facilities will gather data on spring flows, groundwater levels, water quality, land surface elevations, brine, soil moisture, weather, and wind-mobilized particulate matter. A detailed description of each of the 24 monitoring features is set out in Section 5 of the Management Plan, and monitoring procedures are described in Section 6.

Groundwater data will be incorporated into water resource models that provide a predictive tool to identify how project operations will affect the aquifer and groundwater-related resources. The groundwater models are described in Section 3 of the Management Plan. Air quality data will be utilized in statistical analyses to identify the relationship between groundwater levels, soil moisture, and dust mobilization from the surface of the dry lakes. The air quality analyses are described in Section 7.4 of the Management Plan.

The Management Plan includes a set of action criteria that will trigger a decision-making process upon measurement of quantified changes in conditions relating to critical resources. These action criteria have been set at conservative levels to provide an early warning of potential future impacts. There is a defined process for scientific review of the monitoring data and modeling results when an action criterion has been reached. If the review results in a determination that the changed conditions are attributable to project operations and constitute a potential adverse impact to critical resources, corrective measures must be implemented to avoid the adverse impact.

Action criteria and corrective measures have been developed for potential impacts to springs, groundwater quality, wells owned by neighboring landowners, land subsidence, liquefaction related to spreading basin operations, hydrocompaction, movement of the groundwater-brine interface, brine resources, and air quality related to wind-blown particulate matter from the dry lakes. The corrective measures that may be implemented to avoid adverse impacts include modification or suspension of project operations that are creating the potential for the impact. Specific action criteria, decision processes, and corrective measures that apply to each type of resource are set forth in Section 7.

The collection of data prior to project operations will provide a baseline that reflects natural fluctuations in the resources that are monitored. Data collected during project operations will provide further information with which to calibrate the water resource models and perform the air quality analyses. This data and scientific analysis may result in determinations that monitoring features should be adjusted or refined to gather more appropriate data. Action criteria may also be refined to reflect natural conditions.

Metropolitan will operate the Cadiz Project in accordance with the Management Plan. Extraction of groundwater for use in Cadiz' agricultural operations will be conducted without adverse impacts to critical resources in accordance with the Management Plan. Metropolitan will be responsible for the construction and maintenance of the monitoring facilities and the collection and analysis of data. BLM will retain authority to enforce the Management Plan through the terms and conditions of the right-of-way grant for the project. Further details of the responsibilities and enforcement provisions are set forth in the Master Response "Governance."

The Management Plan provides measures to protect against the potential adverse impacts to groundwater-related critical resources. The potential impacts are identified and described in both Section 5.6.4 of Volume I, and in Section 2 of Volume IV, of the Final EIR/EIS. The monitoring features and procedures that will be implemented to provide the early warning and avoidance of potential adverse impacts are detailed in the Management Plan. The provisions of the Management Plan are enforceable obligations of Metropolitan under California law, and may be enforced by BLM under federal law. Operation of the Cadiz Project in accordance with the Management Plan will avoid adverse impacts to critical resources.

MASTER RESPONSE NO. 5 - GROWTH INDUCEMENT

A number of commentors expressed concern about the potential for the Cadiz Project to contribute to growth within the service area of The Metropolitan Water District of Southern California (Metropolitan). Some suggested that growth control measures should be imposed in lieu of the project.

The concerns about growth inducement are addressed in the Final EIR/EIS. The evidence supports the conclusion that the Cadiz Project will neither induce growth nor eliminate a constraint on growth. Furthermore, Metropolitan has no authority to regulate or control population or land use. Therefore, it cannot impose growth control measures within its service area.

Section 6 of the Final EIR/EIS discusses historic and projected growth within Metropolitan's service area, which includes much of the urbanized coastal plain of southern California (Final EIR/EIS, Volume I, Figure 2-1). There has been a 22% rise in population from 1980 to 1990. The factors that contribute to the rise in population include socioeconomic factors (employment and industry, housing availability, cost of living) as well as intangible factors (weather or aesthetics). Regional planning agencies like the Southern California Association of Governments project that population growth will continue in southern California through 2020. The growth projections are derived from local officials and are based on regional planning goals. (Final EIR/EIS, Volume I, Section 2.4.2.)

Past experience with drought conditions indicates that restrictions in water use have not restrained growth. During droughts in 1976-77 and 1987-92, when water conservation measures were imposed, population growth continued. For example, the growth rate over the period 1987 to 1992 was 2.5% per year. It is clear that short-term water shortages and mandatory conservation measures did not affect the rate of population growth. The Cadiz Project will help offset the impacts of growth on water supplies. As such, the Cadiz Project responds to needs generated by growth, but does not itself induce growth or eliminate a constraint that has been shown to limit growth.

There are additional reasons why the Cadiz Project will not have growth inducing effects within Metropolitan's service area. The project is located on the Colorado River Aqueduct, and will deliver stored Colorado River water and indigenous groundwater through the Aqueduct for use in the service area. The Cadiz Project will not change the capacity of the Aqueduct, but rather will provide a source of replacement water for other sources of Colorado River water that may not be available in the future.

The Colorado River Aqueduct has a capacity of 1.25 million acre feet (maf) per year. Metropolitan has historically delivered this much Colorado River water, although its dependable supplies of Colorado River water are only 656,000 acre feet per year. (Final EIR/EIS, Volume I, Section 2.5.3) Annual water deliveries through the Aqueduct have generally ranged between 1.2 and 1.3 maf since the mid-1980's. Periodic reductions in Colorado River Aqueduct deliveries prior to 1984 were due to factors such as the availability of lower cost water from other sources or blending requirements within Metropolitan's service area.

In the past, Metropolitan has made full use of the Aqueduct by delivering water that is apportioned to, but unused by, the states of Arizona and Nevada, as well as surplus water to which California is entitled. As Arizona and Nevada reach the full use of their entitlements on the Colorado River, there will be less water available for use by California agencies, including Metropolitan. During years in which there is insufficient Colorado River water to deliver a full 1.25 million acre feet to Metropolitan, there will be space available in the Colorado River Aqueduct. The Cadiz Project will provide a replacement supply of water that may be delivered to Metropolitan's service area using the available space in the Aqueduct.

Since the size of the Colorado River Aqueduct is not increased by the Cadiz Project, it will not result in the delivery of a greater volume of water than Metropolitan has delivered in the past. Instead, the project provides an alternate source of water for delivery through the Aqueduct. Since there is no increase in the capacity of the delivery system, the project cannot result in the delivery of additional water supplies. Therefore, the project cannot have growth inducing impacts.

The Cadiz Project will add flexibility to Colorado River Aqueduct operations. When surplus Colorado River water is available or when demands for such water in Metropolitan's service area are reduced, a portion of the Colorado River Aqueduct capacity will be used to put water in storage in the Cadiz groundwater basin. Conversely, when no surplus is available from the Colorado River and demands for imported water within Metropolitan's service area require full deliveries from the Colorado River Aqueduct, available Aqueduct capacity will be used to deliver stored water and available indigenous groundwater from the Cadiz groundwater basin. This balancing of Aqueduct operations to maintain constant Colorado River area water supplies does not alter historical Colorado River Aqueduct delivery patterns and does not cause growth.

MASTER RESPONSE N0. 6 - NEED FOR SUPPLEMENT/RECIRCULATION

A number of commentors requested that the Draft EIR/EIS be supplemented and/or recirculated. NEPA regulations require that a Supplemental EIS be prepared when there are substantial changes in the proposed action relevant to environmental concerns or significant new circumstances or information relevant to environmental concerns (Title 40, Code of Federal Regulations, section 1506.9(c)(1)). A Supplement may also be prepared where the agency determines that the purposes of NEPA would be furthered by doing so (Title 40, Code of Federal Regulations, section 1506.9(c)(2)). The CEQA Guidelines (Title 14, California Code of Regulations, section 15088.5) discuss the need for recirculation of a Draft EIR or of portions of the EIR for public review when significant new information is added.

A number of the comments received on the Draft EIR/EIS raised concerns regarding the proposed Cadiz Project operations related to potential impacts to springs, the Cadiz and Fenner groundwater basins, adjacent groundwater basins, and the potential for increased dust mobilization from Bristol and Cadiz dry lake beds. Preparation of a Groundwater Monitoring and Management Plan was identified as mitigation measure WR-1 in the Draft EIR/EIS, and it was intended that such a Management Plan would be presented in the Final EIR/EIS.

The Bureau of Land Management and the Metropolitan Water District of Southern California, the NEPA and CEQA lead agencies for the project, determined that preparation of a Supplement to the Draft EIR/EIS would be appropriate. The Supplement addressed concerns raised in comments regarding potential impacts to water-related resources, and allowed the Management Plan to be circulated for public review and comment. Potential impacts to water-related resources were reevaluated in light of the development of the Management Plan and its incorporation into the proposed action. Finally, cumulative effects of the Cadiz Project and other projects on water resources were reevaluated.

The National Park Service (NPS) and U. S. Geological Survey (USGS) became cooperating agencies pursuant to NEPA for purposes of preparation of the Supplement to the Draft EIR/EIS and the Final EIR/EIS. The USGS limited its role to providing scientific and technical support and advice to the BLM on the design of the Management Plan. The Management Plan was prepared by the BLM, NPS, USGS, Metropolitan, the County of San Bernardino, and Cadiz Inc.

The Supplement, including the Management Plan that was included in Section 3.0, was circulated for public review and comment beginning on October 20, 2000 and ending on January 8, 2001. The preparation and circulation of the Supplement satisfied the NEPA and CEQA requirements for addressing new information regarding the provisions of the Management Plan and potential impacts to water-related resources.

MASTER RESPONSE NO. 7 - FORMULATION AND SCREENING OF POTENTIAL PROJECTS

Comments were received that questioned the scope of formulation and screening of potential projects considered in the environmental documents, or suggested additional "alternative projects" such as limiting the project to storage operations or using water conservation measures to meet the project purpose and need.

CEQA and NEPA both require that an EIR/EIS discuss a reasonable range of alternatives that would feasibly attain most of the basic project goals and would substantially lessen or avoid its environmental impacts. (Title 14, California Code of Regulations, section 15126.6; Title 40, Code of Federal Regulations, section 1502.14) There is no minimum number of alternatives that must be discussed, although inclusion of a "no project" or "no action" alternative is required. In addition, the EIR/EIS should include a discussion of alternatives that were considered but eliminated from detailed analysis.

Section 3 of the Draft EIR/EIS described the process of formulating and evaluating formulation and screening of potential projects to meet the project need of providing dry-year water supply from the Colorado River resource area. This process included an initial review of potential projects, and a subsequent evaluation of alternative alignments for the Cadiz Project. To avoid confusion between the screening of potential projects and the selection of alternative alignments, the discussion of this process has been clarified in the Final EIR/EIS. Section 3 describes the screening of potential projects that lead to the selection of the combined Cadiz Storage and Transfer projects for further analysis. Section 4 discusses the selection of alternative alignments for the combined Cadiz Storage and Transfer project.

The formulation and evaluation of potential alternatives was conducted in a series of increasingly detailed studies. Each alternative was formulated and reviewed in light of the project goal of developing storage and dry-year water supplies in the Colorado River area. As described in Section 3.4, a total of thirteen potential projects were initially identified, including ten groundwater storage projects, one water transfer project, and two projects that would desalt agricultural drainage water. For the reasons described in Section 3.5, all of the potential projects except the Cadiz Valley Groundwater Storage Project, the Cadiz Valley Dry-Year Transfer Project, and the Hayfield Valley Groundwater Storage Project, were eliminated from detailed analysis because of technical or environmental considerations that rendered the other alternatives infeasible. The Hayfield Project was separately analyzed and is being implemented by Metropolitan.

The two projects located at Cadiz Valley were combined into one project. All project operations at the Cadiz Valley site will be governed by and subject to the provisions of the Groundwater Monitoring and Management Plan (Final EIR/EIS, Volume IV). Both storage of Colorado River water and withdrawal of Colorado River water and indigenous groundwater must be monitored and managed to avoid adverse impacts to critical resources. The amount of water that may be withdrawn will be determined in compliance with the requirements of the Management Plan and, if indigenous water cannot be taken without adverse impacts to critical resources, then the project will be operated as a "storage-only" project. With the implementation of the Management Plan, critical resources will receive the same level of protection regardless of whether the project is operated as a "storage only" project or for both storage and transfer of water. Therefore, all of the potential environmental impacts which could result from a "storage only" project have been evaluated.

There is no set amount of indigenous groundwater that may be transferred under the Cadiz Project, and therefore, the Final EIR/EIS does not evaluate the potential impacts from the transfer of a set

amount of water. Rather, the project will be implemented in accordance with the Management Plan that requires operation of the aquifer so that no adverse impacts occur to critical resources. Therefore, any project definition that is based on a specified amount of indigenous water for transfer is not appropriate. The project may only transfer an amount of water that meets the requirements of the Management Plan.

Conservation was not considered an alternative to the Cadiz Project because a wide variety of conservation methods are already being implemented by Metropolitan and its member agencies. (Final EIR/EIS, Volume I, Sections 2.3.3 and 2.4.4) Even with these conservation methods in place, and including all other known projects for meeting the dry-year demand, including the Cadiz and Hayfield Projects, there will still be an unmet demand for water in Metropolitan's service area. Thus, a conservation alternative would not achieve the project goals. More information on Metropolitan's conservation efforts is provided in Master Response "Water Conservation."

The formulation and selection of site-specific formulation and screening of potential projects for the Cadiz Groundwater Storage and Dry-Year Supply Program is described in Sections 3.6 and 4. Further information regarding the selection of alternative alignments for the Cadiz Project is discussed in Master Response "Alignment Alternatives."

MASTER RESPONSE NO. 8 - WATER QUALITY

This master response addresses three types of potential impacts to water quality: 1) potential impacts to indigenous groundwater quality due to the introduction of water from the Colorado River Aqueduct; 2) potential impacts to indigenous groundwater quality due to induced flow of lower quality groundwater from Bristol and Cadiz dry lakes; and 3) potential impacts to water quality in the Colorado River Aqueduct due to introduction of indigenous groundwater.

POTENTIAL IMPACTS TO INDIGENOUS GROUNDWATER QUALITY DUE TO THE INTRODUCTION OF WATER FROM THE COLORADO RIVER AQUEDUCT

Groundwater quality in California is protected pursuant to the California Porter-Cologne Water Quality Control Act. In the Cadiz Project area, water quality is regulated by the State Water Resources Control Board (State Board) and the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Board). Pursuant to its statutory authority, the Regional Board prepared and adopted its Water Quality Control Plan in 1994 (Basin Plan), which identifies surface and groundwater within its geographical jurisdiction, existing and potential future beneficial uses of those waters, and water quality objectives to protect the beneficial uses of the waters. The Bristol groundwater hydrologic unit is identified in the Basin Plan as having municipal, industrial, and agricultural beneficial uses. The Cadiz groundwater hydrologic unit has municipal and industrial beneficial uses. The Basin Plan also states the Regional Board's goal of maintaining the existing water quality of all non-degraded groundwater basins. The State Board follows a similar non-degradation policy.

The potential impacts to indigenous groundwater quality due to the introduction of water from the Colorado River Aqueduct are addressed in Section 5.5.4 of the Final EIR/EIS, Volume I. These potential impacts include transport of salts from the unsaturated soil into the indigenous groundwater, and introduction of undesirable constituents, such as TDS and perchlorate, from Colorado River water.

Results obtained during operation of the pilot spreading basin and groundwater analyses from the nearby observation wells indicate that the initial infiltration of Colorado River water will dissolve salts in the upper parts of the unsaturated zone and carry them downward to the water table (Metropolitan 1999b). Although this process would create some initially high TDS concentrations below and adjacent to the spreading basins, over time the effect would be transitory. The dissolved salts will be pumped out when water is delivered from storage or assimilated into the groundwater within the project area. Accordingly, such impacts are less than significant.

Colorado River water has a higher level of TDS (600 mg/L) than indigenous groundwater (300 mg/L) in the project area. Colorado River water also has levels of perchlorate (up to 9 μ/L) that are higher than the indigenous groundwater, although they are lower than state action levels. As a result, storage operations will result in an increase in groundwater concentrations of these constituents. However, this effect will be limited to the area of groundwater mounding caused by the project spreading operations. Selected project production wells will be screened in the permeable upper alluvial sediment to ensure the extraction of the stored water, along with the higher levels of TDS and perchlorate. During periods of prolonged storage of Colorado River water in the aquifer system, the project wellfield would be operated to manage the stored Colorado River water to prevent it from migrating outside the zone of influence of the extraction wellfield. Any increase in TDS or perchlorate concentrations within the project area groundwater will be small and will not affect compliance with beneficial groundwater uses (municipal, industrial and agricultural) in or adjacent to the project area.

The Cadiz Project will be operated in accordance with the provisions of the Groundwater Monitoring and Management Plan (Final EIR/EIS, Volume IV). These provisions include the requirement that operations meet the requirements of the Regional Board's Basin Plan. (Final EIR/EIS, Volume IV, Section 7.2.1) Future updates of the applicable Basin Plan may alter the requirements that Cadiz Project operations must meet.

The monitoring provisions of the Management Plan include regular water quality testing. During storage operations, the quality of Colorado River water will be monitored weekly at Lake Havasu. Water samples from project area wells will also be tested on an annual or semi-annual basis. Should the storage of imported Colorado River water present a potential violation of the Basin Plan, Metropolitan will implement corrective measures that may include curtailing delivery of Colorado River water, treating the water prior to storage, or such other measures as may be required by the Regional Board.

In addition to the above provisions, the Management Plan requires the implementation of a Closure Plan (Final EIR/EIS, Volume IV, Section 8). The overall purpose of the Closure Plan is to ensure that no residual effects of project operations will result in adverse impacts to critical resources in or adjacent to the project area and to protect groundwater quantity and quality for future beneficial uses in and adjacent to the project area. If delivery of Colorado River water into the Basin is determined to be necessary as a corrective measure to avoid long term impacts, the water will meet the water quality requirements of the Basin Plan so that there is no impairment of the groundwater for beneficial use.

Operation of the Cadiz Project in accordance with the provisions of the Management Plan will protect groundwater resources within the project area. Accordingly, adverse impacts to groundwater quality as a result of project operations will be less than significant.

POTENTIAL FOR IMPACTS TO INDIGENIOUS GROUNDWATER QUALITY DUE TO INDUCED LOW OF LOWER QUALITY GROUNDWATER FROM BRISTOL AND CADIZ DRY LAKES

The potential impacts from migration of lower-quality groundwater from the Bristol and Cadiz dry lakes is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Such an occurrence is not likely to result from project extraction operations. The location of the saline groundwater interface (defined by the 1,000 mg/L TDS concentration line) was determined using groundwater data from wells in the vicinity of the project area. Regular monitoring of potential movements of this saline groundwater interface will be undertaken as part of the Management Plan (Final EIR/EIS, Volume IV, Section 7.2.6). A measured change in excess of 25% of background TDS concentrations will be evaluated and if appropriate, corrective measures will be implemented. Corrective measures may include modification of project storage and extraction operations to re-establish the natural hydraulic gradient and background TDS concentrations at the margins of Bristol and Cadiz dry lakes.

Operation of the project in accordance with the Management Plan will avoid adverse impacts to the fresh water aquifer in the vicinity of the project area due to movement of the saline groundwater interface.

POTENTIAL IMPACTS TO WATER QUALITY IN THE COLORADO RIVER AQUEDUCT DUE TO INTRODUCTION OF INDIGENOUS GROUNDWATER

The potential impacts to water quality in the Colorado River Aqueduct due to introduction of indigenous groundwater are analyzed in Section 5.5.4 of the Final EIR/EIS, Volume I. Potential

impacts include increased concentrations of bromide, arsenic, hexavalent chromium, and nitrates. lntroduction of indigenous groundwater can provide water quality benefits through the reduction of certain constituents, such as TDS and perchlorate. Although introduction of indigenous groundwater into the Colorado River Aqueduct would raise concentrations of some undesirable constituents, these constituent levels in the Colorado River Aqueduct will not appreciably increase and will not affect the ability to meet drinking water standards. Accordingly, adverse impacts to water quality in the Colorado River Aqueduct will be less than significant.

Several comments expressed concern regarding the existence of hexavalent chromium in the indigenous groundwater. Sampling and analysis of groundwater yielded values in the range of approximately 0.015 mg/L (15 ppb) to 0.026 mg/L (26 ppb). The distribution of the groundwater samples within the project area, and the similarity in values to other groundwater basins, suggest that the hexavalent chromium in the groundwater is a natural phenomenon, unrelated to industrial or man-made causes. There are no applicable standards for hexavalent chromium in drinking water, but the state standard for total chromium in drinking water is 50 ppb (a federal standard of 100 ppb applies to total chromium in drinking water). The California Department of Health Services and the U. S. Environmental Protection Agency consider the drinking water standards for total chromium to be protective from the effects of hexavalent chromium. The Cadiz Project will include routine monitoring for this constituent and the delivery of water from the groundwater basin will comply with any future applicable federal or state standards.

MASTER RESPONSE NO. 9 - WATER CONSERVATION

Comments were received that suggested the use of water conservation measures within the service area of The Metropolitan Water District of Southern California to reduce water demands. Metropolitan is not a retail water agency and delivers water only to its member agencies. This imposes limitations on Metropolitan's ability to enforce conservation measures, however, it has developed an extensive water conservation program that it implements directly and through its member agencies.

INTEGRATED RESOURCES PLANNING GOALS

Metropolitan's Integrated Resource Planning (IRP) process places equal emphasis on local and imported resource development. The IRP treats conservation as core local supply, on par with recycling and other resources. As described in the IRP, conservation savings result from both "active" and "passive" conservation efforts. "Active" conservation consists of water-agency funded programs; "passive" conservation is demand reductions attributable to conservation-oriented plumbing codes and usage reductions resulting from increases in the price of water; that is, the conservation will occur without any specific agency action targeted at conservation.

Metropolitan and its member agencies have adopted a regional water conservation goal of 1 million acre feet in annual savings by 2020. Since 1980, conservation programs and plumbing codes have resulted in annual savings that reached an estimated 480,000 acre feet in 1998. Metropolitan is continuing to implement conservation programs, such as those described in Section 2.4.4 of the Final EIR/EIS, so that the goal may be met.

IMPLEMENTATION OF CONSERVATION BEST MANAGEMENT PRACTICES

Metropolitan's conservation programs are closely linked to the efforts of the California Urban Water Conservation Council (CUWCC). As a signatory to the CUWCC's *Memorandum of Understanding Regarding Water Conservation in California* (Urban MOU), Metropolitan has pledged to make a good faith effort to implement a prescribed set of urban water conservation "Best Management Practices" (BMPs). Metropolitan is providing technical and financial support to enable its member agencies to meet the terms of the Urban MOU.

Funding for urban BMPs and other conservation-related activities is provided by Metropolitan's Conservation Credits Program (CCP). Under the CCP program, Metropolitan provides financial support to member agency conservation programs by paying either $154 per acre-foot of water conserved or one-half of the program cost, whichever is less.[1] To be eligible for CCP funds, water conservation project proposals submitted by a member agency must have demonstrable water savings that reduce demands on Metropolitan's system. There are four main areas of focus regarding conservation: residential programs; large landscape programs; commercial, industrial and institutional programs; and measurement and evaluation.

RESIDENTIAL PROGRAMS

Residential programs include funding of ultra-low-flush toilets (ULFT) and low flow showerheads. As of June 2000, Metropolitan had provided $95 million for installation of over 1.6 million ULFTs and $12 million to install or distribute 2.9 million low flow showerheads. More than 200,000 ULFTs

[1] The $154 per acre-foot represents Metropolitan's avoided cost of water attributable to conservation.

are installed each year through programs sponsored by Metropolitan and its member agencies. This level of activity is expected to continue for at least the next five years.

High-efficiency clothes washers (HECWs) are relatively new to the list of urban water conservation BMPs. In September 1997, the CUWCC adopted BMP 6 for HECWs. Prior to 1999, two of Metropolitan's member agencies sponsored rebates for HECWs: the San Diego County Water Authority (SDCWA) and the Los Angeles Department of Water and Power (LADWP). Metropolitan participates in rebate programs offered by energy companies to replace inefficient appliances by adding $35 for the water savings generated by HECWs. As of June 2000, the number of rebates issued by all HECW rebate programs in Metropolitan's service area totaled 14,000 and Metropolitan had contributed $590,000.

The Residential Water-Use Efficiency Survey Program was designed to meet the requirements of BMP 1. The purpose is to develop a standard approach to the design and implementation of residential survey programs. In total, approximately 57,000 surveys have been performed in Metropolitan's service area to which Metropolitan contributed more than $3 million, including retrofits, since residential survey programs began.

Metropolitan has funded several residential research and development projects. These include a leak repair project, an Evapotranspiration Controller Pilot project, a test of various targeting components for survey programs, and several other similar projects.

LARGE LANDSCAPE

Under this program, Metropolitan offers financial assistance to its member agencies for the purchase and installation of landscape retrofit equipment that saves water and improves irrigation efficiency. The landscape retrofits have included moisture sensors, controller up-grades, and centralized computer-controlled irrigation systems. Funding is provided based on verified water savings. Because outdoor water use is affected significantly by the behavior of the people controlling watering, a pay-for-performance structure guarantees that retrofits will not only be installed, but will also be used properly. Twenty-six of these projects have been completed by eleven member agencies. In support of the retrofit program, Metropolitan funds, develops, and coordinates training and education programs for landscape workers and professionals. Metropolitan also collects and disseminates information about the effectiveness of landscape water conservation programs and strategies, participates in landscape research projects, and investigates and tests promising new technologies.

COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL PROGRAMS

The Commercial, Industrial, and Institutional (CII) community is motivated by and reached through an array of outreach and financial incentives. In addressing BMP 9, Metropolitan currently manages two types of financial incentives programs with participating member agencies. The first involves a "menu" arrangement under which Metropolitan offers financial incentives for the replacement of specific water efficient equipment such as ultr-low-flush toilets, ultr-low-flush urinals, cooling tower conductivity controllers, and coin-operated high efficiency washing machines. These incentives are based on the results of nearly 1,000 commercial audits conducted by Metropolitan and its member agencies. The most frequently identified retrofits formed the basis for the current CII Menu Program. The second program involves financial incentives for capital improvements that increase the efficiency of large water using processes. Metropolitan pays up to $154 per acre-foot for water saved, up to one-half of the project cost over a five-year period. Since each industrial process change is unique, Metropolitan works closely with member agencies and their industrial customers to custom-tailor three-way contracts specifying performance requirements for each project.

MEASUREMENT AND EVALUATION

The Measurement and Evaluation effort has four primary functions:

- Providing a means to measure and evaluate the effectiveness of current and potential conservation programs
- Developing reliable estimates of various conservation programs and assessing the relative benefits and costs of these interventions
- Providing technical assistance and support to member agencies in the areas of research methods, statistics and program evaluation
- Documenting the results and the effectiveness of Metropolitan-assisted conservation efforts

Metropolitan's staff has served as technical advisors for a number of state and national studies involving the quantification and valuation of water savings.

OTHER CONSERVATION-RELATED ACTIVITIES AT METROPOLITAN

Metropolitan has a program of water-conservation related education programs. These provide education materials to the public and the schools.

Metropolitan's Water System Operations Group works to fulfill BMP 3 (System Water Audits, Leak Detection, and Repair) and BMP 4 (Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections). Metropolitan has a variety of ongoing system-wide leak detection programs. Each month, a mathematical algorithm compares inflow with outflow for Metropolitan's entire system. Major control structures and hydroelectric plants are inspected weekly and field crews patrol Metropolitan's pipelines daily, visually inspecting for leaks. All below-ground structures are checked every six months as part of a continuous preventive maintenance program.

As a wholesale water supplier, Metropolitan has no retail customers. However, all inter-agency water service connections are metered. Any new water agency supplied by Metropolitan would likewise be metered. Metropolitan currently charges a unit price per acre-foot. The unit price does not decline with the amount of water supplied. This commodity-based rate structure complies with BMP 11.

CONCLUSION

Because of Metropolitan's commitment to conservation, water conservation savings are projected as a local supply in planning for future water resources. Even with conservation measures, however, the Cadiz Project is needed to meet dry-year demand within Metropolitan's service area.

SECTION 4

F1 RESPONSES TO COMMENTS FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY DATED FEBRUARY 22, 2000.

F1-1 Please see Response to Comment F1-9 for a discussion of air quality issues.

F1-2 The U.S. Army Corps of Engineers has determined by letter dated July 26, 2001, that the proposed Cadiz Project will not discharge dredged or fill material into a water of the United States or an adjacent wetland, that the Cadiz Project is not subject to Clean Water Act Section 404 jurisdiction, and that a Section 404 permit is not required. See Appendix E to the Final EIR/EIS Volume I. Table ES-2, Table 1-1, and Table 13-1 of the Final EIR/EIS have been revised accordingly.

F1-3 Section 5.8 of the Final EIR/EIS identifies the sensitive habitats that could be potentially affected by the proposed project and the mitigation measures to be implemented to reduce the impact. Permanent and temporary impacts to native habitats are discussed in Section 5.8.4. Mitigation Measures B-26 and B-33 provide for the acquisition of mitigation lands to offset impacts to sensitive habitats. As indicated, all of the habitat types impacted by the project would be mitigated through offsite habitat acquisition. The CDFG and BLM must approve the mitigation lands prior to implementation of the project. In addition, Mitigation Measures B-3 through B-5 will reduce impacts to sensitive habitats in the area.

F1-4 The Final EIR/EIS does contain sufficient information to fully assess the potential impacts to the environment.

F1-5 The Final EIR/EIS, including the Management Plan, includes information regarding groundwater modeling and potential impacts. The Final EIR/EIS also includes a Mitigation Monitoring Plan that comprehensively describes all mitigation and monitoring activities.

F1-6 See Response to Comment F1-9 for a discussion of the air quality conformity determination prepared for the project.

F1-7 A copy of the Final EIR/EIS will be sent.

F1-8 General comments are noted. The CDCA Plan is addressed in Section 5.2.1 of the Final EIR/EIS.

F1-9 The Draft EIR/EIS overestimated construction emissions. The Final EIR/EIS contains revised air emission calculations. A draft air quality conformity determination has been issued for the 30-day comment period required by 40 CFR 93.156 (b). The conformity analysis was designed and conducted in coordination with EPA Region IX, BLM, Mojave Air Quality Management District and Metropolitan. The analysis concludes in a determination that the project is in conformity with the Clean Air Act. The commentor is correct that the proposed project is not in a federal non-attainment area for ozone.

F1-10 As discussed in Section 5.5.4 of Volume I of the Final EIR/EIS, the movement of the saline water interface is defined by the 1,000 milligram per liter total dissolved solids contour (note that this is not brine). The possibility of water level declines beneath Bristol Dry Lake has been evaluated and the possibility of adverse effects will be managed through the Management Plan. See Section 7.2.6 of the Management Plan.

F1-11 A detailed summary of water resources data and modeling used to evaluate the project is contained in the two volume Cadiz Groundwater Storage and Dry-Year Supply Program, Draft Environmental Impact Report/Draft Environmental Impact Statement: Groundwater Resources Report (Report No. 1163). This report contains data and modeling results from the eight-month pilot demonstration program and other investigations conducted to characterize the groundwater basin, infiltration rates in the vicinity of the project spreading basins, and recharge rate to the area.

Groundwater modeling is being expanded as part of the project, as described in Section 3 of the Management Plan. For example, the geographic area of certain groundwater models will include the entire Bristol, Cadiz and Fenner Valley watershed areas. While such models are only approximations and simplifications of real systems they can be useful management tools, when used in conjunction with measured data, for testing alternative monitoring designs. Accordingly, groundwater models will be used to aid the process of evaluating and refining the monitoring network and Action Criteria.

To develop a further understanding of the hydrogeologic system, a number of additional models would be prepared including a rainfall-runoff model, an unsaturated zone flow and transport model, a saturated zone flow and transport model, a saturated zone model, and a density dependent groundwater flow and transport model. These models and their uses are described in Section 3 of the Management Plan.

F1-12 See Master Response "Groundwater Monitoring and Management Plan." A list of relevant studies of the Mojave Desert used in preparation of the environmental documentation is presented in Section 15 of Volume I of the Final EIR/EIS. In addition, a detailed summary of water resources data and modeling used to evaluate the project is contained in the two volume Cadiz Groundwater Storage and Dry-Year Supply Program, Draft Environmental Impact Report/Draft Environmental Impact Statement: Groundwater Resources Report (Report No. 1163).

Because of technical disagreement regarding the groundwater flow modeling used in the Draft EIR/EIS, the six operational scenarios presented in the Draft EIR/EIS are no longer being utilized to evaluate potential impacts of the proposed project. The Management Plan has replaced the use of the operational scenarios and has been incorporated into the proposed action. The Management Plan will require measurement of physical parameters at key locations throughout the potentially affected region for early detection of changes to groundwater levels, groundwater quality, and air quality related to mobilization of dust from the dry lakebeds. Data obtained from physical monitoring facilities will be used to calibrate models that will be used to predict behavior of the affected aquifers and surface water features. Early modifications to project operations dictated by the Management Plan will avoid adverse impacts to critical resources that could be caused by the project. Impacts are evaluated in Section 5.5.4 of the Volume I of the Final EIR/EIS assuming implementation of the Management Plan.

In response to the comment concerning "reduced indigenous groundwater extraction quantities" note that the actual quantity of water that could be stored and transferred will be governed by the requirements of the Management Plan and is therefore not quantified as of this time. The storage of Colorado River water and the extraction of indigenous groundwater that could be transferred are conditioned by the requirements of the Management Plan, and therefore will be quantified during its implementation. Because there is no set amount of indigenous groundwater to be transferred, the Final EIR/EIS does

not evaluate the potential impacts from the transfer of a set amount of water, but instead requires operation of the aquifer so that no adverse impacts occur to critical resources.

In addition, once the Management Plan models have been expanded and updated, they will be run for various, hypothetical operational scenarios using a range of estimates of natural recharge as described in Section 3 of the Management Plan. This range will include the low end of current natural recharge estimates.

F1-13 Section 5.5.4 of the Final EIR/EIS Volume I considers the potential impacts to water quality of the Cadiz Project. The Management Plan includes provisions for monitoring, decision-making and implementation of corrective actions, if necessary, to ensure that project operations will comply with applicable water quality regulations. More specifically, the Management Plan addresses four types of potential impacts to water quality: 1) potential impacts to indigenous groundwater quality due to the introduction of water from the Colorado River Aqueduct, 2) potential impacts to indigenous groundwater quality due to induced migration of water from the deeper aquifer zones underlying the project area, 3) potential impacts to indigenous water quality due to induced flow of lower quality water from Bristol and Cadiz dry lakes and, 4) potential impacts to water quality in the Colorado River Aqueduct due to introduction of indigenous groundwater. For a more detailed explanation of Management Plan provisions to protect water quality, see Master Response "Water Quality."

F1-14 See Master Response "Water Quality." The potential for water quality impacts to wells owned by neighboring landowners due to project operations is identified in Section 5.5.4 of the Final EIR/EIS Volume 1 and in the Management Plan.

All storage and extraction activities will be monitored by and subject to the provisions of the Management Plan and thereby ensure that there will be no adverse impacts to "any water intakes" that are in hydraulic communication with the project area. Section 7.2.1. of the Management Plan specifically addresses potential impacts to indigenous groundwater quality.

F1-15 No pesticides or any hazardous substances have been detected in groundwater in the project area. A full suite of Title 22 analyses was conducted on the Fenner Gap pilot test production well. These data are reported in the Cadiz Groundwater Storage and Dry-Year Supply Program, Draft Environmental Impact Report/Draft Environmental Impact Statement: Groundwater Resources Report (Report No. 1163). All water produced by the project will comply with applicable water quality standards and is not anticipated to affect the ability to meet drinking water standards. As such, no impacts to human health are anticipated.

F1-16 A comprehensive Management Plan has been prepared and incorporated in the project. For further details, see the Groundwater Monitoring and Management Plan, Volume IV of this Final EIR/EIS.

F1-17 The applicability of the Clean Water Act is discussed in response to comment F1-2.

F1-18 The Desert Tortoise Biological Assessment for the Cadiz Groundwater Storage and Dry-Year Supply Program was submitted by BLM to the USFWS on December 9, 1999 to initiate Section 7 Consultation with the U.S. Fish and Wildlife Service. Section 7 Consultation will be completed prior to implementing the project.

F1-19 The Final EIR/EIS assesses impacts to specific types of plant communities and wildlife habitats found in the washes in the project area, including Mojave wash scrub and Mojave creosote bush scrub. Each specific area containing these habitat types including Schulyler Wash will be subject to mitigation measures provided in the Final EIR/EIS. In addition, no permanent diversion structures are planned for the Schulyler Wash or for any of the washes to be crossed by the pipeline. Spreading basins will be located outside major natural drainages to avoid erosion impacts from flash flooding. Impacts to washes will be limited to periods of construction. The pipeline will be buried sufficient to avoid creating flood diversions. Wellhead structures will have minimal effect of surface flows. Since the washes are ephemeral, the need for temporary diversion structures during construction will be minimal. Nonetheless, Mitigation Measure B-33 would provide mitigation lands on a 1:1 ratio for wash habitats disturbed during construction.

F1-20 Permanent and temporary impacts to native habitats are discussed in Section 5.8.4 of the Final EIR/EIS Volume I. Mitigation Measures B-26 and B-33 provide for the acquisition of mitigation lands to offset impacts to sensitive habitats (Mojave wash scrub, Mojave creosote bush scrub, desert dunes/sand fields) as identified in Table 1. As indicated, all of the habitat types impacted by the project will be mitigated through offsite habitat acquisition. See Mitigation Measure B-26. In addition, Mitigation Measures B-3 through B-5 will also reduce impacts to sensitive habitats in the project area.

No contingency plan for the off-site mitigation land is required to ensure the "success" of this habitat, because it is being acquired and preserved in its existing, pristine condition. Mitigation contingency plans are typically associated with habitats being created or enhanced. Mitigation Measure B3 provides for the removal of invasive species for two years following construction activities along the pipeline corridor, allowing for the replaced top soil to re-establish native species

F1-21 The mitigation measures for loss of native habitat are the transfer of equal areas of comparable habitat to BLM for wildlife management and the salvage of topsoil for revegetation of the disturbed construction footprint. See Mitigation Measures B-1, B-2, B-3, B-32 and B-33 in Section 5.8.5 of the Final EIR/EIS Volume I. The Final EIR/EIS has included (for each alternative) quantification of temporary and permanent impacts to offset impacts to all sensitive habitats, including but not limited to Mojave wash scrub habitat. In addition compensatory mitigation, offsite habitat preservation, will be provided.

F1-22 Temporary impacts will involve the disturbance and/or clearing of vegetation and topsoil, which will be replaced following construction activities. Habitats thus impacted can often recover if the source of disturbance is removed and non-native species are adequately inhibited during the reestablishment. Permanent impacts are limited to developed (e.g., unpaved roads, pumping stations) and/or routinely disturbed habitats (e.g., spreading basins) and result in permanent habitat modification/substrate alteration. Habitats thus impacted (see Table 8.5.1of the Final EIR/EIS Volume I for totals) will not be likely to recover, or do so in such a way that a pre-impact vegetation assemblage can no longer persist. Page 5-53 of the Draft EIR/EIS discussed the potential for sand flow impacts which were found to be very remote due to project facilities being located away from the areas affected by windblown sand. Biological resources are discussed in Section 5.8 of the Final EIR/EIS Volume I.

The reestablishment of temporarily impacted habitats resulting from the proposed project is discussed in Section 5.8.5 of the Final EIR/EIS Volume I under Mitigation Measures B-1,

B-2, B-3, B-32 and B-33. Vegetation in the temporarily impacted areas will be crushed in place, and the removed plant material, along with the top 4 to 6 inches of topsoil, will be stockpiled (for a period not to exceed 3 months). These stockpiled materials will then be spread over the re-contoured surfaces of previously (temporarily) impacted areas following construction. After spreading the stockpiled material, including salvaged topsoil, a sheepsfoot roller will be used to roughen the surface, and thereby create additional microhabitat for seed germination. Apart from using these techniques, no special revegetation/stabilization techniques are anticipated to be necessary. Regardless of the success of this effort, all temporarily impacted habitats will be mitigated as if they were permanent impacts through offsite habitat acquisition.

Stabilized/partially stabilized desert dunes/sand fields habitat will be impacted by the proposed project, as quantified in Table 5.8.1 of the Final EIR/EIS Volume I. Because temporary impacts will be mitigated as if they were permanent impacts through the establishment of mitigation lands, the length of time required for reestablishment of these areas is compensated for.

F1-23 As discussed in Section 5.8.5 of the Final EIR/EIS, Mitigation Measures B-26 and B-33, all native habitat communities impacted by the proposed project are desert tortoise habitat (Mojave creosote scrub, Mojave wash scrub and stabilized/partially stabilized desert dunes/sand fields) and will be mitigated at a 1:1 ratio by preservation of the offsite desert tortoise habitat.

F1-24 Removal of non-native plants from spreading basins would be accomplished by physical means, no herbicides will be used. See Mitigation Measure B-3.

F2 RESPONSES TO COMMENTS FROM THE UNITED STATES DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE DATED FEBRUARY 28, 2000.

F2-1 Comments noted. The location of the Mojave National Preserve in relation to the project area is depicted on Figure 1-2 of the Final EIR/EIS Volume I.

F2-2 In response to the differences in opinion referenced in this comment, BLM and Metropolitan developed the Management Plan that is incorporated into the project. This Management Plan was developed in consultation with the NPS, USGS and County of San Bernardino. The project will be operated in accordance with the Management Plan to avoid adverse impacts to critical resources, including those in the Mojave National Preserve. For further description of the Management Plan, see Master Response "Groundwater Monitoring and Management Plan" and the Management Plan, Volume IV of the Final EIR/EIS. See Response to Comment F2-60.

F2-3 Comments noted and responded to below.

F2-4 The original public review period for the Draft EIR/EIS was from November 26, 1999 to February 23, 2000 (a period of 90 days). The public review period was extended an additional 14 days, to March 8, 2000.

A total of six public meetings have been held in connection with the Cadiz Project Draft EIR/EIS. Three public scoping meetings for the Draft EIR/EIS were held: Cadiz (2/23/99), the City of Twentynine Palms (2/25/99) and the City of Needles (5/10/99). Additionally, three Draft EIR/EIS public comment meetings were held: Cadiz 12/15/99, City of

Twentynine Palms (12/15/99) and City of Needles (12/16/99). During these public meetings any interested person was provided the opportunity to make oral or written comments and/or to have questions about the Cadiz Project answered by the Metropolitan staff and consultants and BLM staff in attendance at those meetings. Sufficient notification was provided for public review and comment on the Draft EIR/EIS.

F2-5 Indices for the Draft EIR/EIS and the Supplement were provided in the Supplement, Section 8.0. An index is also included in Section 17 of the Final EIR/EIS Volume I.

F2-6 Potential aesthetic impacts of construction are disclosed in Section 5.14.4 of the Final EIR/EIS Volume I. The Final EIR/EIS concludes that, based on implementation of mitigation measures, the Cadiz Project will not result in significant adverse impacts related to aesthetics. Therefore, aesthetics is listed in the Final EIR/EIS as a project-related impact, which would not be significant after mitigation.

F2-7 Comments noted. See Responses to Comments F2-48 through F2-52.

F2-8 Comment noted. In Section 1 of the Final EIR/EIS Volume I, the language has been revised to read, "...The BLM must consider whether to: 1) amend the California Desert Conservation Area Plan for an exception to the utility corridor requirement; and 2) grant rights-of-way to Metropolitan for construction and operation of the project.

F2-9 Comments noted. See Response to Comment F2-8.

F2-10 The initial list of potential project sites included all known potential locations of groundwater basins that could provide storage of Colorado River water, even if they were located within or in close proximity to the Joshua Tree National Park. However, as noted, these locations were screened out because such land use within the Joshua Tree National Park would conflict with designated park purpose and federal law. Similar concerns do not arise from the Cadiz Project's location 15 miles away from the Mojave National Preserve. See Response to Comment F2-12.

F2-11 See the Final EIR/EIS, Figure 1-2 which depicts the location of the Mojave National Preserve relative to the project area.

F2-12 Environmental issues were considered in the screening of potential projects, including potential impacts to public uses of National Parks. For example, the "Pinto Valley Groundwater Storage Project" site, while it met all other initial screening criteria, was eliminated for further review because a project at this site would have significant conflicts with existing National Park uses and environmental values. The Mojave National Preserve was not considered an "adjacent public use of park lands" because it is not adjacent to the project. It is located 15 miles away.

F2-13 The project will not affect or alter the rights of any overlying landowner to continue diverting and using water from surface streams or groundwater basins, including the rights appurtenant to lands in the wilderness areas and Mojave National Preserve. The historic use of groundwater in the Fenner Valley is described in Section 5.5.1 of the Final EIR/EIS.

The Cadiz Project is a conjunctive use storage and transfer project that will use raw water from the Colorado River and could use indigenous groundwater from the Cadiz area. Metropolitan will have a paramount right to recapture water imported from the Colorado

River and stored in the groundwater basin underlying the project site. As to the transfer of indigenous groundwater, California law recognizes that groundwater may be appropriated for non-overlying uses, including exportation for use outside the groundwater basin boundary.

F2-14 Groundwater mounding resulting from artificial recharge of surface water is well-documented and, in fact, was measured and observed during the pilot infiltration test in Fenner Gap (Metropolitan, 1999). Groundwater mounding theory is described by Hantush (1967), Marino (1974) and more recently by Bouwer (1998). Groundwater mounding is well documented for surface water percolation along the Santa Ana River (Poland, 1947) and the Kern Water Bank (DWR, 1987). The lateral movement of mounded groundwater occurs based on Darcy's Law such that groundwater will move from an area of higher hydraulic head (in this case the area of highest mounding) to an area of lower hydraulic head.

F2-15 See Master Response "Formulation and Screening of Potential Projects."

F2-16 See Master Response "Formulation and Screening of Potential Projects." In response to the first part of this comment, "1) other locations for the project," an initial screening of locations for Colorado River water storage projects was evaluated as described in Section 3 of the Final EIR/EIS Volume I. The identification and evaluation of potential projects was conducted in a series of increasingly detailed studies beginning with the evaluation of 13 potential projects for supplying water along the Colorado River Aqueduct. The result of this process was the determination that two projects were feasible: the Hayfield Valley Groundwater Storage Project and the Cadiz/Fenner Valley Project.

Metropolitan and BLM were unable to identify any other feasible locations beyond the two identified in the Final EIR/EIS.

In response to the second part of the comment "2) using the Fenner, Bristol, and Cadiz aquifers for storage of Colorado River water only (i.e. no take of indigenous water)" the use of the aquifer system underlying the project area for "storage-only" of Colorado River water has been evaluated in the Final EIR/EIS. All known potential impacts that could result from the storage of Colorado River water have been identified and evaluated. Examples of potential impacts that could result from the storage of Colorado River water include but are not limited to: reduction of indigenous groundwater quality, impacts to neighboring wells, liquefaction, hydrocompaction, dilution of brine resources, and other impacts analyzed in Section 5.5.4 of the Final EIR/EIS.

In response to the third portion of the comment "3) taking a significantly reduced amount of indigenous water, with the amount reflecting USGS estimates for natural recharge to the area" is discussed in the Management Plan. The actual quantity of water to be stored and transferred is not known at this time. The amount of Colorado River water that could be stored and the quantity of indigenous groundwater that could be transferred are governed by the requirements of the Management Plan, and therefore will be quantified during its implementation. Because there is no set amount of indigenous groundwater to be transferred, the Final EIR/EIS does not evaluate the potential impacts from the transfer of a set amount of water, but instead requires operation of the project so that no adverse impacts occur to critical resources. Therefore, the request to consider the environmental impacts of a "significantly reduced amount" of Colorado River water has essentially been

accommodated, as the Final EIR/EIS evaluates the transfer of any amount of water that will satisfy the provisions of the Management Plan.

All project operations, including extraction of groundwater (if any), will be governed by and subject to the provisions of the Management Plan for the purpose of ensuring there will be no adverse impacts resulting from project operations. For example, potential adverse impacts to critical resources due to the transfer of indigenous groundwater would be avoided by limiting the amounts of transfer (if any) to such amounts that comply with the requirements of the Management Plan.

Incorporation of the Management Plan into the project has the practical effect of combining the storage element and the transfer element of the Cadiz Project into one project alternative. For example, if it were determined that indigenous groundwater could not be transferred in compliance with requirements of the Management Plan, then the project would be operated as a "storage-only" project. Conversely, should transfers of indigenous groundwater comply with the requirements of the Management Plan, including the avoidance of adverse impacts to critical resources, the Cadiz Project would then be able to provide both conjunctive-use storage and transfer. In other words, under the provisions of the Management Plan, critical resources will receive the same level of protection if the project were operated as storage-only project or as a storage and transfer project. Therefore, all of the potential environmental impacts which could result from a storage-only project have been evaluated in the Final EIR/EIS.

F2-17 Conservation is a basic element of Metropolitan's long-term water management strategy. Metropolitan has historically assumed a leadership role in water management and is currently implementing a comprehensive package of conservation and water management programs to ensure its ability to meet current and projected demand within its service area. Metropolitan and its member agencies have contributed over $160 million to conservation programs involving retrofitting more than four million residential plumbing fixtures. The result of these and other conservation programs has been the permanent reduction in water demand of 480,000 acre-feet per year. Programs implemented by Metropolitan and its member agencies account for more than half of the water savings due to conservation in California.

The California Urban Water Conservation Council (CUWCC) has established a list of 14 Best Management Practices (BMP's) to promote water conservation in California. Metropolitan supports the CUWCC as a signatory to *its Memorandum of Understanding Regarding Water Conservation in California* (Urban MOU). Metropolitan also supports CUWCC with technical, administrative, governance and financial assistance. The Association of California Water Agencies and the U. S. Bureau of Reclamation have recognized Metropolitan's significant contributions to the development and coordination of conservation activities. Metropolitan's Conservation and Related Programs are described in *The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December 2000.* Xeriscaping, water rationing and increased water rates during dry years are measures that are not included in CUWCC's current list of approved BMP's. Furthermore, Metropolitan is a wholesale water agency and does not have the authority to regulate water use by retail customers.

Metropolitan's Integrated Resources Plan (IRP) includes a total conservation saving of 1,000,000 acre-feet per year by the year 2020. This target includes pre-1990 savings, price

effects and continued savings accruing from the effect of BMP implementation. See Master Response "Water Conservation."

F2-18 In response to the differences in opinion referenced in this comment, BLM and Metropolitan developed the Management Plan that is incorporated into the project. This Management Plan was developed in consultation with the NPS, USGS and County of San Bernardino. Reference to a sustainable yield of 30,000 acre-feet per year has been deleted from the Final EIR/EIS.

F2-19 The locations in question are not located within the Mojave National Preserve. They are located on Cadiz Inc. landholdings as identified in the Final EIR/EIS, Figures 3-1 and 3-2. The text of the Final EIR/EIS has been revised to read "...Spreading basins in the upper reaches of Fenner Gap, on Cadiz Inc. landholdings, were initially considered..."

F2-20 Operation of the project in accordance with the Management Plan will avoid environmental impacts to the Mojave National Preserve.

F2-21 The Final EIR/EIS concludes that the Cadiz Project will not result in any significant adverse impacts to the Fenner Basin. In fact, the Cadiz Project will establish substantially greater protection of natural resources, in and surrounding the project area than presently exist through the extensive monitoring and management required by the Management Plan.

F2-22 The commentor is incorrect in stating that the "projected deficit is caused by increase [sic] water consumption without any conservation measures being imposed." In recent years, per capita water consumption has decreased in the Metropolitan service area. See Master Response "Water Conservation." Deficits will increase as a result of an inability to convey available supplies to Metropolitan's service area.

F2-23 Ocean desalination is not a potential alternative to the proposed project because it does not meet the project objectives related to managing Colorado River water supplies. As stated in Section 4.8.2 of the Final EIR/EIS, desalination is not a feasible solution for seasonal or long-term storage deficit problems and therefore was not considered as an outcome of the No Action alternative.

F2-24 Comment noted. As stated in the CDCA plan: "The California Desert Plan has been designed to provide a guide for management over a long-term period. In order to do this, a process must be provided that will be flexible enough to permit changes in the face of unanticipated demands or response to future events that, as yet, cannot be foreseen." Accordingly, chapter seven of the California Desert Conservation Area Plan provides criteria and a procedure for amendments to the Plan. In compliance with these provisions, the BLM is authorized to consider an amendment to the California Desert Conservation Area Plan for an exception to the utility corridor requirement for the Cadiz Project. See also Response to Comment F2-8.

F2-25 The cited reference is to the area impacted by the project wellfield. This construction would cause a disturbance to existing Cadiz agricultural operations limited to small areas as described in Section 5.1.4 of the Final EIR/EIS Volume I. This disturbance of up to six acres of agricultural operations may be necessary to accommodate construction of pipelines for each of the Cadiz Project build alternatives. As noted in the Final EIR/EIS, the disturbance of up to six acres of agricultural land out of a total of 1,600 acres is negligible and not significant.

F2-26 Comment noted. The terms "active" and "potentially active" are used in accordance with the definitions of the California State Geologist. The fact that a fault might not be considered under these definitions to be "active" or "potentially active" does not rule out the possibility of future seismic activity. Instead, these definitions are intended to identify such a fault as having a relatively low risk of future seismic activity.

F2-27 While significant seismic shaking has the potential to alter the subsurface boundaries of groundwater basins, the potential is very remote. As described in the Final EIR/EIS, a magnitude 7.1 earthquake (the Hector Mine Earthquake) occurred along the Lavic Lake Fault on October 16, 1999. The epicenter of this earthquake was approximately 45 miles west of the project area. Even though this earthquake was one of the four largest earthquakes to have occurred in southern California in this century, no changes to groundwater boundaries have been observed. Therefore, no further clarification is necessary.

F2-28 Section 5.5.4 of the Final EIR/EIS Volume I analyzes the potential for land subsidence related to the Cadiz Project. It identifies the area with the greatest potential for subsidence as the western part of the project wellfield in the vicinity of the Cadiz Inc. agricultural operations.

Subsidence is also addressed in the Management Plan. The potential for land subsidence and loss of groundwater storage capacity due to groundwater withdrawal is addressed in Section 2.2. Section 5 of the Management Plan describes the network of monitoring features. Examples of monitoring features that will protect against potential subsidence include, but are not limited to, land surface elevation surveys (Feature 10), an extensometer (Feature 11), and microgravity stations (Feature 12). Section 6.2. describes monitoring, testing and reporting procedures relating to land subsidence. Section 7.2.3 identifies the action criteria, decision-making process and corrective measures relating to the potential for land subsidence.

If it were determined through the analysis of field monitoring (outlined above) that project operations caused a surface elevation change of 0.5 feet within the project area, all relevant information will be evaluated in accordance with the provisions of the Management Plan. Corrective measures that will be implemented to avoid project impacts include one or more of the following: (a) reduction in pumping from project wells, (b) revision of pumping locations within the project wellfield, (c) stoppage of groundwater extraction for a duration necessary to correct the predicted impact, or (d) delivery of Colorado River water, if available, to the project spreading basins. Accordingly, the anticipated impact of subsidence as a result of project operations is determined to be less than significant.

F2-29 Not all occurrences of land subsidence are permanent or result in non-recoverable compaction of soils as is implied by the comment. If, through the analysis of field monitoring, it were determined that project operations caused a surface elevation change of 0.5 feet within the project area, all relevant information will be evaluated in accordance with the provisions of the Management Plan. Corrective measures that will be implemented are summarized in Response to Comment F2-28. Accordingly, Section 5.5.4 of the Final EIR/EIS Volume I provides an analysis of potential for land subsidence due to the operation of the Cadiz Project and concludes that "...the anticipated impact of subsidence as a result of project operations is determined to be less than significant."

F2-30 Figure 5.5-13 of the Final EIR/EIS Volume I shows the upper elevations of the Fenner watershed within the Mojave National Preserve as requested. The physiology and topography of the Mojave National Preserve, to the extent that it overlies a hydrologically connected aquifer system, is included in the physiology and topological description in Section 5.5.1 of the Final EIR/EIS Volume I

F2-31 Comment noted. See Response to Comment F2-30.

F2-32 Comments noted. It is acknowledged that there is a disagreement among technical experts as to the estimates of groundwater recharge contained in the Draft EIR/EIS. In response to the differences in opinion referenced in this comment, BLM and Metropolitan developed the Management Plan that is incorporated into the project. This Management Plan was developed in consultation with the NPS, USGS and County of San Bernardino. The project will be operated in accordance with the Management Plan to avoid adverse impacts to critical resources, including those in the Mojave National Preserve. For further description of the Management Plan, see Master Response "Groundwater Monitoring and Management Plan" and the Management Plan, Volume IV of the Final EIR/EIS.

F2-33 Because the Cadiz Inc. agricultural wellfield is actively pumped throughout the year, evaluation of water levels based on measurements made in these wells must consider long-term trends, not short-term effects resulting from inadequate recovery from pumping and/or interference from other wells. As many as sixteen years of pumping history and groundwater level data are available for this wellfield. In general, after observing an initial decline in water levels related to the initiation of pumping, water levels stabilized owing to the adjusted equilibrium of the aquifer. This water level response is typical of all groundwater basins in which pumping occurs. Hydrographs for the Cadiz Inc. agricultural wells are presented in the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Groundwater Resources Report (Metropolitan Report No. 1163).

F2-34 Section 5.5.1 of the Final EIR/EIS Volume I describes existing water uses in the subsection entitled "Groundwater Use." The monitoring network and data that was used to collect this information is summarized in the 1993, San Bernardino County certified Final Environmental Impact Report (SCHNo.89020203), (URS Consultants Inc. 1993b). The County of San Bernardino mandated that specific groundwater monitoring activities to be undertaken by Cadiz (see Mitigation Monitoring and Compliance Program Mitigation Measure WR6). To comply with these monitoring requirements, the Cadiz Valley Agricultural Development Ground Water Monitoring Plan was developed in cooperation with San Bernardino County to monitor all potential environmental impacts that could result from the agricultural operations water use. Section 5.5.2 of the Final EIR/EIS Volume I presents the thresholds of significance used to evaluate potential groundwater level declines.

See Response to Comment F2-33.

F2-35 The California Environmental Quality Act (CEQA) requires that the CEQA lead agency state in the EIR the thresholds at which potential adverse impacts will be considered significantly adverse to the environment for purposes of environmental review. These thresholds are determined by the CEQA lead agency for the purposes of CEQA compliance. Therefore, the significance thresholds listed in the Final EIR/EIS have been used to evaluate the Cadiz Project with respect to effects that are related to water resources. Section 5.5.4 of

the Final EIR/EIS Volume I, discusses each potential water resources impact of the project, and a determination is made as to whether the impact will be significant.

The Management Plan has been incorporated into the project and potential effects are reviewed in light of its implementation. The Management Plan identifies critical resources, potential adverse impacts of the Cadiz Project on the critical resources and action criteria which, if reached, would serve as a precursor to indicate that an adverse impact may occur as a result of the project. Because the Management Plan has been developed to predict and avoid adverse impacts to critical resources, the action criteria have been set conservatively and would be triggered well in advance of the occurrence of a significant adverse effect as identified by the CEQA significance thresholds listed in Section 5.5.2 of the Final EIR/EIS.

See also Master Response "Groundwater Monitoring and Management Plan" regarding the role of the implementation of the Management Plan in preventing adverse impacts to the aquifer system.

F2-36 Metropolitan, in compliance with the provisions of the Management Plan, will operate the Cadiz Project including storage of water delivered from the Colorado River Aqueduct and the extraction of stored Colorado River water and indigenous groundwater. The BLM will establish and retain control over the enforcement of the Management Plan through the terms and conditions of any right-of-way grant(s) it issues.

For the purposes of the Cadiz Project, the term "wet" year refers to future years when Colorado River water will be available to divert from the Colorado River Aqueduct to the Cadiz Project conveyance facility and to the spreading basins for percolation to the groundwater basin. The term "dry" year refers to any year in which there would be a need for water within Metropolitan's service area and which Metropolitan would seek to withdraw water from the project area (stored Colorado River water, indigenous groundwater, or both). Regardless of the occurrence of a "wet" or a "dry" year, all Cadiz Project groundwater operations, including the amount of indigenous groundwater extracted, will be governed by and subject to all of the provisions of the Management Plan. The implementation of the project and the Management Plan will ensure the protection of the aquifer system underlying the project area from any adverse impacts related to project operations.

F2-37 The figure referred to as "Cadiz, Inc., attachment 2" in the comment letter did not appear in either the Draft EIR/EIS or the Supplement. The figure attached to the comment letter illustrates groundwater levels south of the Clipper Mountains, which is not within the boundary of the Mojave National Preserve. Regardless of any prior computer modeling, storage and extraction operations of the project will be governed by the Management Plan that will assure no adverse impacts to critical resources will occur.

F2-38 See Response to Comment F2-37. As described in Section 3 of the Management Plan, a series of water resource models will be developed and calibrated using available data prior to the commencement of Cadiz Project operations (during the pre-operational phase), during the operational phase, and during the post-operational phase. Although models are only approximations and simplifications of real systems they are considered to be useful management tools, when used in conjunction with measured data, for testing alternative monitoring designs and management options. Accordingly, models will be used to help guide decisions on further evaluating and refining the monitoring network, and evaluating and refining action criteria.

F2-39 The potential for impacts to indigenous groundwater quality due to the introduction of water from the Colorado River Aqueduct are addressed in Section 5.5.4 of the Final EIR/EIS Volume I. The introduction of Colorado River water (approximately 600 mg/L TDS) into indigenous groundwater in the project area (approximately 300 mg/L TDS) will result in an increase in groundwater TDS concentrations. It is anticipated that this effect will be limited to the area of groundwater mounding caused by the project spreading operations. Any introduced Colorado River water will most likely be removed by the project wellfield during extraction operations. To recover stored Colorado River water from the basin, selected production wells will be screened in the more permeable upper alluvial sediment (current unsaturated zone). This design feature will allow for extraction of stored water that contains greater concentrations of TDS than the indigenous groundwater.

Any resulting increase in TDS concentrations within the project area groundwater will be small and will not affect compliance with drinking water standards or other beneficial groundwater uses (municipal, industrial and agricultural) in or adjacent to the project area.

In addition, perchlorate has been identified in Colorado River water and could impact the water quality of the indigenous groundwater in the Cadiz Project area. Recent testing has detected this constituent in Colorado River water at concentrations ranging from non-detectable to as high as 9 micrograms/liter (µg/L). The current provisional State of California Department of Health Services maximum contaminant level for perchlorate is 18 µg/L in drinking water, not 18.0 nanograms per liter as stated by commentor. Colorado River Aqueduct water is a raw water source not subject to this provisional limit. Nonetheless, the levels of perchlorate in Colorado River Aqueduct water are approximately one half of this provisional limit. Any increased perchlorate concentrations that may occur in the project area will be within the provisional limit.

The Management Plan, Section 5 describes the Management Plan network of monitoring features. A summary of the types of monitoring features, as well as monitoring frequencies is provided in Table 1, a summary of monitoring features and testing protocols is provided in Table 2 and generalized locations of monitoring facilities are shown in Figures 4 and 5. Section 6.2 identifies monitoring and testing procedures relating to the protection of this aquifer system including the protection groundwater quality. Section 7.2.1 describes the applicable action criteria, decision-making process and corrective measures.

For additional information, see Master Response "Water Quality" sub-heading entitled "Potential Impacts to Indigenous Groundwater Quality due to the Introduction of Water From the Colorado River Aqueduct."

F2-40 Section 5.5.4 of the Final EIR/EIS Volume I analyzes the potential impacts to water resources, due to change of groundwater elevations as a result of project operations. No springs are known to exist in the project area. The closest spring (Bonanza Spring located on BLM-managed land) is located in the Clipper Mountains approximately 12 miles north of and up gradient of the proposed location for the Cadiz Project spreading basins and wellfield. Other springs in the region are located in the Granite and Old Woman mountains. These springs range in distance from 15 to 20 miles from and are up-gradient of the project area. Springs located within the Mojave National Preserve, federally designated wilderness areas, and Bonanza Spring are identified in the Management Plan as critical resources.

The Management Plan includes a comprehensive program for monitoring and preventing any adverse impact to such springs. Section 2.1 identifies all known potential impacts to such springs. Section 5 describes the Management Plan network of monitoring features.

F2-41 Metropolitan and the BLM are the agencies responsible for approving the Management Plan. Metropolitan, in compliance with the provisions of the Management Plan, will operate the Cadiz Project. The BLM will establish and retain control over the enforcement of the Management Plan through the terms and conditions of any right-of-way grant(s) it issues. See Master Response "Governance."

F2-42 Comment noted.

F2-43 In response to a number of Draft EIR/EIS comments raising concerns regarding the proposed Cadiz Project operations related to potential impacts to springs, the Cadiz and Fenner groundwater basins, adjacent groundwater basins, and the potential for increased dust mobilization from Bristol and Cadiz dry lakebeds, the Management Plan was prepared by the BLM, NPS, USGS, Metropolitan, the County of San Bernardino, and Cadiz Inc. It will govern water storage and extraction so as to ensure there will be no adverse impacts to critical resources that could result from Cadiz Project operations. Critical resources identified in the Management Plan are as follows:

- Springs Within Affected Watersheds Including Springs of the Mojave National Preserve and BLM-Managed Lands
- Aquifer System
- Brine Resources of Bristol and Cadiz Dry Lakes
- Air Quality in the Mojave Desert Region

The Management Plan has been incorporated into the Cadiz Project proposed action and was published and circulated for public review and comment in the Supplement to the Draft EIR/EIS.

F2-44 See Response to Comment F1-9. Section 5.6 of the Draft EIR/EIS overestimated project-related air emissions (particularly PM_{10}). As a result, the section has been revised for the Final EIR/EIS. On page 5-109 of the Draft EIR/EIS, the project area is said to be located within a non-attainment area for both ozone and PM_{10}. This statement is not correct. As noted on page 1 of the EPA comment letter to the Draft EIR/EIS received on February 22, 2000, the project area is not within a federal non-attainment area for ozone. Nonetheless, the project will be within a non-attainment area for PM_{10}. As such, a draft air quality conformity determination has been issued for the 30-day comment period required by 40 CFR 93.156 (b). The conformity analysis was designed and conducted in coordination with EPA Region IX, BLM, Mojave Air Quality Management District and Metropolitan. The analysis concludes in a determination that the project is in conformity with the Clean Air Act.

F2-45 Sensitive receptors for air quality are defined in Section 5.6 of the Final EIR/EIS Volume I as residences, schools, playgrounds, child care centers, convalescent homes, retirement homes, rehabilitation centers and athletic facilities. The Mojave Desert Planning Area Federal Particulate Matter (PM_{10}) Attainment Plan, published in 1995 states the following:

"Air pollution does not affect the health of exposed persons with equal severity. Although everyone is potentially affected by PM_{10} exposure, certain sensitive groups are especially vulnerable. These at-risk individuals include people with chronic obstructive lung disease or cardiovascular disease, individuals with influenza and asthma, elderly individuals, and children."

The threshold of significance in the Final EIR/EIS for assessing impacts to sensitive receptors refers to sensitive groups of people. Although air quality in the Mojave National Preserve is considered a critical resource, it is not considered a "sensitive receptor" for purposes of this analysis. Through implementation of the Management Plan air quality will be monitored as part of the project. See Master Response "Air Quality."

F2-46 The analysis of potential air quality impacts related to Bristol and Cadiz dry lakes is set forth in Sections 5.5.1 and 5.5.4 of the Final EIR/EIS Volume I.

F2-47 Mitigation Measure AS-2 requires that all outdoor lighting and fixtures be shielded or designed and located so that direct light is contained within the Cadiz Project site. This measure ensures that adjacent properties including BLM lands are protected from spillover light. In addition, the following mitigation measure has been added to the proposed Cadiz Project to further control night lighting. New Mitigation Measure AS-3 states: "All permanent project night-lighting will be controlled by a switch or motion sensor so that fixtures do not remain lit continuously during the evening and night hours."

F2-48 The definition of cumulative impacts in the Final EIR/EIS is a combination of the definitions found in NEPA (40 CFR 1508.7) and CEQA (CEQA Guidelines § 15355). The phrase "closely related" comes from the CEQA definition. However, the commentor misinterprets how the phrase "closely related" was applied. All past, present and probable future projects in the Cadiz and Fenner valleys, not just other Metropolitan water projects, are considered for cumulative impacts analysis in the Final EIR/EIS. Existing traffic in the area is not a separate project in and of itself to be considered in the cumulative impacts analysis, and, in any event, does not result in water use. However, such traffic is taken into account in the baseline conditions for the used for impact analysis and mitigation, in the transportation portion of the cumulative impacts analysis in the Final EIR/EIS in Section 7.5.7.

F2-49 The cumulative impact analysis in the Final EIR/EIS assesses the "impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions." 40 C.F.R. § 1508.7. The Final EIR/EIS evaluates cumulative impacts of each alternative in Section 7.

F2-50 Section 7 of the Final EIR/EIS Volume I specifically addresses the potential for cumulative impacts relating to the Cadiz Valley Agricultural Development. See Sections 7.2.4 and 7.3.5.

F2-51 The Rail Cycle Project was not considered a reasonably foreseeable future project at the time of the publication of the Draft EIR/EIS. Since that time, all land use approvals for the Rail Cycle Project have been revoked by the County of San Bernardino.

F2-52 Potential cumulative impacts from linear structures on wildlife movement patterns were not found. See Section 7.3.8 of the Final EIR/EIS. The linear elements of the Cadiz Project are generally below the ground surface (water pipeline) or above the ground surface (electric transmission lines). Therefore, they will not combine with surface features such as the

Cadiz-Rice Road or Arizona California and Burlington Northern Santa Fe Railroads or Historic Route 66 to impair wildlife movement in the area. The Eastern/Canal Alternative is the only alternative with a linear surface feature that could interfere with wildlife migration. The potential to impact wildlife movement is one of the reasons that this alternative is not the preferred alternative.

F2-53 Section 5.5.4 of the Final EIR/EIS analyzes the potential for long-term drawdown of groundwater. During the Cadiz Project operational phase, groundwater levels will rise in the area surrounding the spreading basins in response to storage of Colorado River water, and fall in the area surrounding the project wellfield in response to extraction of stored Colorado River water and indigenous groundwater. The localized area with the greatest potential for long-term drawdown of groundwater levels directly underlies the project wellfield. To a lesser extent, drawdown of groundwater will occur in the area immediately surrounding the project wellfield.

As specified in the Management Plan (Section 6), static groundwater levels will be monitored regularly beginning in the pre-operational phase, throughout the operational phase and through the post-operational phase. Groundwater levels would be monitored continuously.

An analysis of maximum projected subsidence due to project operations is described in Section 5.5.4 of the Final EIR/EIS. No significant impacts in the project area will occur as a result of the maximum projected subsidence, including any significant reduction in "groundwater carrying and holding capacity" in the aquifer system. Accordingly, any such subsidence will not represent a significant irreversible or irretrievable commitment of resources.

To assure no adverse impacts to long-term groundwater levels throughout the aquifer system due to project operations, corrective measures will be implemented as required in Section 7 of the Management Plan. Corrective measures entail modification of project operations such as reduced groundwater extraction. Implementation of the Closure Plan would require that pre-operational static groundwater levels will not be depressed by more than an average of 100 feet in the area underlying the project wellfield at the conclusion of the operational phase. However, no amount of drawdown will be allowed that will cause adverse impacts to critical resources as discussed in the Management Plan.

The Closure Plan will be implemented during the operational phase and will remain in effect through out the entire post-operational phase, which will be a minimum of 10 years, and will continue as long as deemed necessary to prevent potential adverse impacts. All provisions of the Management Plan will remain in effect and run concurrently with the term of the post-operational phase. In addition, all water use associated with the Cadiz Valley Agricultural Development will be conducted without adverse impacts to critical resources in accordance with the Management Plan, including the provisions of the Closure Plan. Therefore, while temporary depressions in the groundwater surface could occur during the operational phase of the project, the maximum allowable drawdown will be controlled by the provisions of the Management Plan, including the Closure Plan (Management Plan Section 8).

As a result of the above provisions, the potential adverse impacts due to the potential for long-term drawdown of groundwater will be less than significant.

F2-54 The definitions for the following terms in Section 16.1 of the Final EIR/EIS have been revised. The CEQA Guidelines define "Cumulative Impacts" in Section 15355 as follows:

"Cumulative Impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

(a) The individual effects may be changes resulting from a single project or a number of separate projects.
(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The CEQA Guidelines define "Effects" as follows:

"Effects" and "Impacts" as used in these guidelines are synonymous.

(a) Effects include:

(1) Direct or primary effects which are caused by the project and occur at the same time and place.
(2) Indirect or secondary effects which are caused by the project and are late in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

(b) Effects analyzed under CEQA must be related to a physical change.

The term "Direct Impact" has been removed from the Glossary.

F2-55 See Master Response "Air Quality" for a detailed discussion of the potential air quality impacts from Bristol and Cadiz dry lakes.

F2-56 The Management Plan has been developed by BLM and Metropolitan in consultation with the NPS, USGS and County of San Bernardino, and included as an element of the project. The Management Plan was described in the Supplement to the Draft EIR/EIS and circulated for public review and comment. The Management Plan is published as a separate volume of the Final EIR/EIS.

F2-57 See Response to Comment F2-2.

F2-58 Regarding statements relating to the need for a Supplement, see Master Response "Need for a Supplement/Recirculation."

Preparation of a Groundwater Monitoring and Management Plan was identified as Mitigation Measure WR-1 in the Draft EIR/EIS. In response to comments received on the Draft EIR/EIS, the Supplement was circulated beginning on October 20, 2000 and ending on January 8, 2001 to provide the public with the opportunity to review and comment on clarifications to Cadiz Project water resources information including the Management Plan.

The Management Plan has been prepared by the BLM, NPS, USGS, Metropolitan, the County of San Bernardino, and Cadiz Inc. The NPS and USGS became cooperating agencies pursuant to NEPA for purposes of preparation of this Supplement to the Draft EIR/EIS and the Final EIR/EIS.

F2-59 Comments noted. No response is necessary.

F2-60 Comment F2-60 consists of the February 23, 2000 memorandum prepared by the USGS for the BLM and appended to the NPS letter of comment on the Draft EIR/EIS as Attachment 1: USGS Review. The NPS and USGS, as cooperating federal agencies, assisted in preparation of the Supplement, the Final EIR/EIS and the Management Plan with BLM and Metropolitan to address the concerns raised in the USGS review. Therefore, such comments are responded to in these documents.

S1 RESPONSES TO COMMENTS FROM THE CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 8 DATED DECEMBER 1, 1999.

S1-1 Comments noted. No response is necessary.

S2 RESPONSES TO COMMENTS FROM THE CALIFORNIA STATE LANDS COMMISSION DATED FEBRUARY 22, 2000.

S2-1 It is acknowledged that the State Lands Commission would be a responsible agency under CEQA if the Western Alternative or Combination Alternative is selected. The following are state owned parcels of land. If a project alternative that crosses School Lands is selected, a lease or easement agreement will be obtained.

- T 1 N, R 16 E, S 36 – At the West Portal - State Land that would be crossed by the Western and Combination Alignment Alternatives.
- T 5 N, R 14 E, S 36 – Where the main transmission line crosses Rice Road – Private surface ownership, however the State reserved the mineral rights of the SE ¼. Any required acquisition of mineral rights will be negotiated with the State Lands Commission.
- T 3 N, R 16 E, S 36 – Lies 1 mile east of the Eastern Alignment Alternative.

S2-2 The project does not affect or alter the rights of any landowner to continue diverting and using water from surface streams or groundwater basins, including the rights appurtenant to lands under the jurisdiction of the California State Land Commission (see Comment F2-2; Management Plan Sections 5 and 6.1). No impacts to mineral interests retained by the State have been identified.

S2-3 The potential impacts to resources on lands in the project area are discussed in Section 5 of the Final EIR/EIS Volume I. Maps and figures are provided where thought helpful in understanding the analysis. The analysis of potential for land subsidence is provided in Section 5.5.4.

S2-4 The groundwater analysis depicted in the Draft EIR/EIS, Figure 5.5-13 did not depict the geographic extent of potential impacts to groundwater levels of the Cadiz Project.

Section 5.5.4 of the Final EIR/EIS analyzes the potential for long-term drawdown of groundwater. During the operational phase, groundwater levels will rise in the area

surrounding the spreading basins in response to storage of Colorado River water, and fall in the area surrounding the project wellfield in response to extraction of stored Colorado River water and indigenous groundwater. The localized area with the greatest potential for long-term drawdown of groundwater levels directly underlies the project wellfield. To a lesser extent, drawdown of groundwater will occur in the area immediately surrounding the project wellfield.

To prevent significant adverse impacts to long-term groundwater levels throughout the aquifer system due to project operations, corrective measures will be implemented as required in Section 7 of the Management Plan. Corrective measures may include modification of project operations such as reduced groundwater extraction.

Additionally, implementation of a Closure Plan will require that pre-operational static groundwater levels not be depressed by more than an average of 100 feet in the area underlying the project wellfield at the conclusion of the operational phase.
The Closure Plan will be implemented during the operational phase and will remain in effect through out the entire post-operational phase, which will be a minimum of 10 years, and will continue as long as deemed necessary to prevent adverse impacts. All provisions of the Management Plan will remain in effect and run concurrently with the term of the post-operational phase. In addition, all water use associated with the Cadiz Valley Agricultural Development will be conducted without adverse impacts to critical resources in accordance with the Management Plan, including the provisions of the Closure Plan.

S2-5 Loss of foraging habitat for raptor species under the Eastern Alternative will result, primarily, from the loss of agricultural habitats (approximately 3.7 acres). However, other habitats within this alternative may be used by raptors to a much lesser extent. It should be recognized that the project generally includes the construction of an underground pipeline and provision of a permanent access road. Short-term construction impacts will occur in an approximately 200-foot corridor. However, upon project completion, permanent habitat loss will consist predominantly of only the footprint associated with the access road. It is not anticipated that this relatively small area of impact, in relation to the overall habitat availability, will result in significant losses to foraging for these species.

S2-6 Animals removed during pre-construction surveys will be relocated and released in adjacent/offsite habitats under the supervision of the onsite biological monitor following consultation with the CDFG as stated in Mitigation Measure B-7.

S2-7 Pursuant to consultation with USFWS, a speed limit of 35 miles per hour has been determined adequate for vehicles traveling between Cadiz Road and Iron Mountain Pumping Plant during project construction, to identify and avoid desert tortoise.

S2-8 All native habitats permanently and temporarily impacted by the proposed project will be mitigated at a ratio of 1:1. Mitigation ratio 1:1 for Category III lands is per BLM policy (California Statewide Desert Tortoise Management Policy Report, USDI Bureau of Land Management, 1992, Sacramento, California, 59 pages). The offsite habitat that will be acquired shall be commensurate with, or exceed the quality of that which was originally impacted. The ultimate determination of suitable habitat for acquisition will be made in coordination with CDFG and BLM. Because the acquired habitat will already be fully established and undisturbed; no modifications will be necessary and no development time is required for it to become fully functional. This ratio is consistent with that required for

potentially suitable desert tortoise habitat and is consistent with the desert tortoise Class 3 designation of the project area.

S2-9 See Response to Comment S2-8.

S3 RESPONSES TO COMMENTS FROM THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, COLORADO RIVER BASIN REGION DATED FEBRUARY 22, 2000.

S3-1 See Response to Comment F2-39 regarding the potential effects of the project on water quality in the aquifer. Water quality analyses for the project did not detect the presence of MTBE in either Colorado River water or in the indigenous groundwater. See Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Groundwater Resources Report (Metropolitan Report No. 1163) Volume II Appendix.

S3-2 Increased production of calcium chloride and sodium chloride will economically benefit the salt mining operations located on the dry lakes by increasing their supply of salt.

S3-3 See Response to Comment F1-10 regarding the hydraulic connectivity between the groundwater underlying the project and the saline water underlying the dry lakebeds.

S4 RESPONSES TO COMMENTS FROM THE CALIFORNIA DEPARTMENT OF FISH AND GAME DATED FEBRUARY 22, 2000.

S4-1 See Master Response "Groundwater Monitoring and Management Plan" and Responses to Comments F2-40 and F2-53 regarding potential impacts to groundwater levels and springs in surrounding mountains.

S4-2 The potential for conditions to be appropriate for botulism to occur is extremely unlikely. Ongoing maintenance and operation of the spreading basin will not create or allow for the creation of a favorable environment for botulism to develop. Information referenced by the United States Geological Survey indicates that Avian Botulism is most likely to occur in the presence of high air temperature, low water levels and a suitable medium for bacterial growth. Other environmental conditions include complete absence of oxygen, temperatures ranging from 60 to 97 degrees Fahrenheit, a source of animal protein, and a pH ranging from 5.7 to 8.0. The water contained in the spreading basins, at no point, meets all these conditions. The basic operation of the spreading basin involves a continuous source of water entering into spreading basin cells through a control structure which will control and divert water from the transmission pipeline to the inlet structure which then discharges water into the cells. The process will provide a continual supply of oxygenated water, which significantly reduces the likelihood of stagnation or the establishment of botulism. Each basin cell will have a maximum water depth of approximately 3.5 feet. The water will then percolate down through the permeable surface, at an approximate rate of 2 to 4 feet per day. At a conservative rate of one foot per day, water will be expected to remain in the basins for a maximum of four days. This short amount of time will not allow for anaerobic stagnation processes to occur. Therefore, there is no reasonable potential for the basin to be stagnant and suitable for botulism.

S4-3 Mitigation measures for the protection of desert tortoise from ravens has been incorporated in the proposed power pole design. These measures will also discourage use of the poles by

raptors, and include anti-perching spikes (see Final EIR/EIS Volume I Figure 4-26) and angled insulators. Additionally, the minimum separation distance between conductors is 6.8 feet, larger than the wingspan of adult raptors found in the area.

S4-4 See Response to Comment F2-40 regarding potential impacts to springs.

S4-5 See Sections 5.2, 6.1 and 7.1 of the Management Plan regarding the monitoring of springs.

S4-6 See Response to Comment S4-2 and G15-11 regarding the time water is present in the spreading basins.

S4-7 The guidelines regarding power pole design have been incorporated as a project design feature and are set forth in the Mitigation Monitoring Program. See Response to Comment S4-3.

S5 RESPONSES TO COMMENTS FROM THE STATE OF CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, STATE CLEARINGHOUSE DATED FEBRUARY 23, 2000

S5-1 Comments noted. No response is necessary.

S5-2 Comments noted. No response is necessary.

S6 RESPONSES TO COMMENTS FROM THE STATE OF CALIFORNIA GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, STATE CLEARINGHOUSE DATED MARCH 2, 2000.

S6-1 Comments noted. The public review period was extended to March 8, 2000.

S6-2 See Responses to Comments S3-1, S3-2 and S3-3.

R1 RESPONSES TO COMMENTS FROM THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS DATED FEBRUARY 17, 2000.

R1-1 Comments noted. Specific comments are responded to below.

R1-2 Comments noted. All storage and extraction of water will be done in accordance with the Management Plan. Actual quantities of water are dependent on limitations imposed under the Management Plan.

R1-3 Comments noted. No response is necessary.

R1-4 Comments noted. No response is necessary.

R1-5 Comments noted. No response is necessary.

R1-6 Comments noted. No response is necessary.

R1-7 Comments noted. No response is necessary.

R1-8 Comments noted. No response is necessary.

R1-9 Comments noted. No response is necessary.

R1-10 Comments noted. No response is necessary.

R1-11 Comments noted. No response is necessary.

R1-12 Comments noted. No response is necessary.

R1-13 Comments noted. No response is necessary.

R1-14 Comments noted. No response is necessary.

R1-15 Comments noted. No response is necessary.

R1-16 Comments noted. No response is necessary.

R1-17 See Response to Comment F1-9 regarding potential air quality impacts.

R1-18 Comments noted. See Responses to Comments R1-19 to R1-23, below.

R1-19 BLM and Metropolitan are unaware of any watershed management plans or programs in the project area. Therefore, the core RCPG policies related to watershed management are not relevant to this project.

R1-20 See Response to Comment R1-19.

R1-21 There are no wetlands in the project area. Therefore, the core RCPG policy related to wetlands is not relevant to this project.

R1-22 Sections 6.2 and 7.2 of the Management Plan provide water quality monitoring and protection.

R1-23 The need for the project was based on Metropolitan's Integrated Resources Plan (IRP). The IRP includes a target of 500,000 acre-feet per year yield in the year 2020 from water recycling and groundwater recovery, up from the current yield of 230,000 acre-feet per year, an increase of over 100% by 2020. This level of reclamation is supportive of the core RCPG policy.

R1-24 Comments noted. No response is necessary.

R1-25 Comments noted. See Responses to Comments R1-17, R1-19, R1-20 and R1-21.

R1-26 The discussion of consistency or inconsistency of the Cadiz Project with the SCAG policies provided in this comment letter and responses to it are a part of the Final EIR/EIS.

R1-27 Mitigation monitoring consistent with the requirements of CEQA will be conducted.

R1-28 Comments noted. No response is necessary.

R2 RESPONSES TO COMMENTS FROM THE VICTOR VALLEY WATER DISTRICT DATED FEBRUARY 25, 2000.

R2-1 Comments noted. No response is necessary.

R3 RESPONSES TO COMMENTS FROM THE COUNTY OF SAN BERNARDINO, ECONOMIC DEVELOPMENT AND PUBLIC SERVICES GROUP DATED MARCH 7, 2000.

R3-1 Comment noted. BLM and Metropolitan have developed the Management Plan to monitor and protect groundwater resources.

R3-2 See Master Response "Groundwater Monitoring and Management Plan" regarding the development of the Management Plan to address concerns raised in this comment.

R3-3 See Response to Comment R3-2.

R3-4 See Response to Comment R3-2.

R3-5 See Response to Comment R3-2.

R3-6 BLM and Metropolitan believe that the Draft EIR/EIS, Supplement to the Draft EIR/EIS, and the Final EIR/EIS serve the purposes and comply with the requirements of NEPA and CEQA.

R3-7 See Master Response "Formulation and Screening of Potential Projects."

R3-8 See Master Response "Groundwater Monitoring and Management Plan" regarding use of the Management Plan to identify and avoid potential impacts.

R3-9 See Master Response "Growth Inducement."

R3-10 See Master Response "Groundwater Monitoring and Management Plan" regarding mitigation of potential impacts to water resources. This document was circulated for public review pursuant to NEPA and CEQA. Other Cadiz Project mitigation measures are described in the Final EIR/EIS Section 5 and are summarized in Table ES-2. See "Mitigation Monitoring Program for the Cadiz Project."

R3-11 See Master Response "Formulation and Screening of Potential Projects" regarding consideration of "storage only" project operations.

R3-12 Regarding an "accurate and adequate project description," see Response to Comment R3-14. Regarding "a reasonable range of alternatives," see Master Response "Alternatives."

R3-13 See Master Response "Need for a Supplement/Recirculation."

R3-14 The description of the project need and purpose in Section 2 of the Final EIR/EIS does not improperly limit the range of reasonable alternatives considered. Unlike the situation described in the case of *Simmons v. U. S. Army Corps of Engineers* (7th Cir. 1997) 120 F.3d 664, cited in the comment, the Final EIR/EIS discusses all the sources of water available to meet the demands in Metropolitan's service area. However, the specific need for the Cadiz

Project is to provide storage capacity for water from one of those resources, the Colorado River, and additional high-quality water supply to meet dry-year demands. For further discussion, see Master Response "Formulation and Screening of Potential Projects."

R3-15 The comment is a summary of the law and does not state a concern or question regarding the adequacy of the analysis contained in the Draft EIR/EIS, therefore, a response is not required under CEQA or NEPA.

R3-16 See Master Response "Formulation and Screening of Potential Projects." Section 11 of the Final EIR/EIS identifies the evaluation criteria used to rank the alternatives. The section further describes why each criterion used to rank the alternatives is important and indicates how each criterion was quantitatively measured. Table 11-4 lists the criteria and the units of measure and weighting for each criterion. Table 11-5 again lists the criteria, the units of measure and weighting for each, and provides the unweighted values for each alternative as measured by each criterion.

Section 11 explains how the series of unweighted values for each alternative were converted to a total normalized score for each alternative (see Table 11-6). Further, Section 11 presents the results of several sensitivity analysis that were conducted to evaluate whether the ranking of alternatives would be altered by various changes in weighting. The Final EIR/EIS indicates that the ranking of alternatives and, thus the selection of the preferred alternative was not susceptible to such changes in the evaluation.

R3-17 See Master Response "Formulation and Screening of Potential Projects." Section 3 of the Final EIR/EIS Volume I presents a step-by-step approach for screening potential projects that satisfy the objective of managing Metropolitan's Colorado River Resource Area supplies, and selecting those potential projects that should be studied in the greatest detail. The storage and transfer components of the Cadiz Project were combined to meet Metropolitan's dry-year water supply objectives for the Colorado River Aqueduct. The operational scenarios presented in the Draft EIR/EIS have been eliminated from the Final EIR/EIS.

R3-18 See Master Response "Formulation and Screening of Potential Projects." The formulation and evaluation of potential projects was conducted in a series of increasingly detailed studies as described in the Final EIR/EIS Volume I, Section 3. The result of this process was the determination that a water storage and transfer project could be feasible at Cadiz and that none of the other potential projects for supplying water in the Colorado River resource area were feasible except the Hayfield Valley Groundwater Storage Project.

As further clarified in the Final EIR/EIS, Section 3.5.4, the Hayfield Project is being separately implemented.

The Final EIR/EIS defines the Cadiz Project, as a conjunctive use storage and transfer project that will use raw water from the Colorado River Aqueduct and indigenous groundwater from the Cadiz area. Therefore, the project is comprised of two integral parts, which constitute the whole project for CEQA and NEPA. The law requires environmental impacts to be analyzed for the project as a whole. *Citizens Association for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3rd 151, 166-169 [217 Cal.Rptr. 893]; 40 CFR §1502.4(a). Any other analytical approach would have been inimical to the objectives of CEQA and NEPA. *McQueen v. Board of Directors of the Mid-Peninsula Regional Open Space District* (1988) 202 Cal.App.3rd 1136, 1143-1144 [249

Cal.Rptr. 439] (overly narrow project description in improperly used notice of exemption is an example of "the fallacy of division," that is, "overlooking the cumulative impact by separately focusing on isolated parts of the whole."); *See also No Oil, Inc. v. City of Los Angeles* (1987) 196 Cal.App.3rd 223, 232-238 [242 Cal.Rptr. 37] (EIR on proposed exploratory oil drilling not inadequate for failing to examine impacts of alternative pipeline routes."); *Kleppe v. Sierra Club* (1976) 427 U. S. 390, 409-410.

R3-19 The Final EIR/EIS defines the Cadiz Groundwater Storage and Dry-Year Supply Program as a conjunctive use storage and transfer project that would store water from the Colorado River Aqueduct and transfer indigenous groundwater from the Cadiz Project area. As stated in Section 3.3 of the Final EIR/EIS Volume I, the objectives of the Cadiz Project are as follows:

1. Storage of up to 1.5 maf of Colorado River water;
2. Capacity to put or withdraw up to 100,000 acre-feet of water in a given year;
3. Potential for dry-year yield of up to 100,000 acre-feet per year;
4. Potential to produce water quality benefits; and
5. Acceptable levels of environmental impacts.

The Cadiz Project is comprised of two integral parts, which constitute the whole project for CEQA and NEPA. *Citizens Association for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3rd 151, 166-169 [217 Cal.Rptr. 893]; 40 CFR §1502.4(a). The law requires that environmental impacts be analyzed for the project as a whole. Therefore, the Final EIR/EIS adequately evaluates the proposed project. Any other analytical approach would have been inimical to the objectives of CEQA and NEPA. *McQueen v. Board of Directors of the Mid-Peninsula Regional Open Space District* (1988) 202 Cal.App.3rd 1136, 1143-1144 [249 Cal.Rptr. 439] (overly narrow project description in improperly used notice of exemption is an example of "the fallacy of division," that is, "overlooking the cumulative impact by separately focusing on isolated parts of the whole."); *See also No Oil, Inc. v. City of Los Angeles* (1987) 196 Cal.App.3rd 223, 232-238 [242 Cal.Rptr. 37] (EIR on proposed exploratory oil drilling not inadequate for failing to examine impacts of alternative pipeline routes.); *Kleppe v. Sierra Club* (1976) 427 U. S. 390, 409-410.

The Cadiz Project does not rely on a predetermined conclusion that there is approximately 30,000 acre-feet per year of natural recharge to the basin (or any other specified amount of natural recharge). The Final EIR/EIS Volume I, Section 1.5.2 states: "While there remains disagreement among experts regarding the amount of natural recharge to the project area, the parties agreed that the overriding objective is to ensure the protection of critical resources, and that this objective would best be accomplished through the development and implementation of the Management Plan."

Preparation of a Groundwater Monitoring and Management Plan was identified as Mitigation Measure WR-1 in the Draft EIR/EIS. In response to comments received on the Draft EIR/EIS, the Supplement was circulated from October 20, 2000 to January 8, 2001 to provide the public with the opportunity to review and comment on clarifications to Cadiz Project water resources information, including the Management Plan. The Management Plan has been prepared by the BLM, NPS, USGS, Metropolitan, County of San Bernardino, and Cadiz Inc. The NPS and USGS became cooperating agencies pursuant to NEPA for purposes of preparation of the Supplement to the Draft EIR/EIS and the Final EIR/EIS.

With implementation of the Management Plan, adverse impacts to critical resources will be avoided regardless of the amount of natural recharge to the project area. This will be accomplished, in part through the oversight, management and control of Cadiz Project water storage and extraction activities, including the implementation of suitable mitigation measures or corrective actions as specified in the Management Plan. Incorporation of the Management Plan into the project also has the practical effect of combining the "Storage and Transfer Alternatives" (identified by the commentor) into one project alternative. If, for example, it were determined that indigenous groundwater could not be transferred in compliance with requirements of the Management Plan, the Cadiz Project will be a conjunctive-use storage-only project. Conversely, should transfers of indigenous groundwater comply with all the requirements of the Management Plan, including the avoidance of adverse impacts to critical resources, the Cadiz Project will then be able to provide both conjunctive-use storage and transfer.

The Final EIR/EIS thus analyzes the proposed project under both potential results, either as a "storage only" project (if the Management Plan implementation results in no transfers occurring), or as a conjunctive-use storage and transfer project if the Management Plan implementation results in the occurrence of indigenous groundwater transfers.

R3-20 See Response to Comment R3-22.

R3-21 The alternatives analysis properly considers the analysis and conclusions reached in the Final EIR/EIS regarding the hydrological impacts of the proposed project and the various alternatives. See Master Response "Groundwater Monitoring and Management Plan" for information regarding potential impacts related to groundwater.

R3-22 The Hayfield Project was properly considered in the screening process to identify potential water storage projects along the Colorado River Aqueduct. Section 3.5.4 of the Final EIR/EIS Volume I states that the Hayfield Project is being implemented separately.

Because of Metropolitan's role as the primary supplier of water to approximately 17 million people, it is constantly looking for new and different ways to fulfill this role. In a sense, all potential projects considered by Metropolitan could also provide additional means (as opposed to alternative means) of providing water supply and reliability. Because the Hayfield Project was determined to be feasible, it was ultimately considered in its own environmental document and is being implemented as an additional project to provide needed water supply and reliability. Should other alternatives later prove to be feasible, Metropolitan may consider implementation of those projects at some point in time. For example, construction and operation of a desalination facility for agricultural drainage water in the Coachella Valley was considered in the screening process and rejected as infeasible for the reasons stated in Section 3.5.3 of the Final EIR/EIS. However, desalination continues to be studied and it is likely that when technological advances permit, such a project would be pursued.

R3-23 Metropolitan is engaged in a continuing process of determining water needs and potential supply options for supplying water to its customers. Thus, Metropolitan properly considered proposals made by other agencies and landowners in determining alternatives to the Cadiz Project. However, such consideration did not lessen Metropolitan's role or responsibility to identify a reasonable range of alternatives to the Cadiz Project and Metropolitan did not rely exclusively on projects proposed by others in determining the list of alternatives to be

considered in the Final EIR/EIS. Also see Master Response, "Formulation and Screening of Potential Projects."

R3-24 The Draft EIR/EIS did clearly identify meeting dry year water demand through year 2020 as a project objective. See page 1-5 and Section 2.0 of the Draft EIR/EIS. This objective was considered by Metropolitan in its analysis of the need for additional supplies to be provided from the Colorado River Resource Area. See Final EIR/EIS, Volume I Section 2.6.2.

R3-25 Section 3.6.1 of the Final EIR/EIS Volume I, explains the rationale for the siting of project spreading basins in the Fenner Valley. Additional information is presented in technical reports incorporated by reference in the Final EIR/EIS: Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Project Feasibility and Facilities Report (Report No. 1162), and the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Groundwater Resources Report (Report No. 1163). The alternatives analysis in the Final EIR/EIS is only required to relate to the Cadiz Project as a whole, and is not required to consider alternatives for each individual component of the Cadiz Project. *See Big Rock Mesas Property Owners Association v. Board of Supervisors* (1977) 73 Cal. App. 3d 218, 227; *No Oil, Inc. v. City of Los Angeles* (1987) 196 Cal. App. 3d 223, 234-38; *A Local and Regional Monitor v. City of Los Angeles* (1993) 16 Cal. App. 4th 630, 642 n. 8. Thus, a more detailed analysis of alternative locations for the project spreading basins and well field was not necessary.

As provided in Section 3.6.1 of the Final EIR/EIS Volume I, feasible locations for project spreading basins and for connection to the Colorado River Aqueduct were evaluated based on a criteria to minimize the potential for adverse groundwater impacts and to minimize environmental impacts by optimizing the recharge rate per acre, thereby minimizing the total area of the project spreading basins. The spreading basins will be located on Cadiz Inc. landholdings selected to optimize hydrologic features and to avoid potential for connection with the highly saline soils underlying Bristol Dry Lake to the west and Cadiz Dry Lake to the south, and the Cadiz Dunes Wilderness Area. In addition, the wellfield would be located in the vicinity of the spreading basins to localize the recharge and extraction operations. For additional information see the "Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Project Feasibility and Facilities Report (Report No. 1162)."

R3-26 As explained in Response to Comment R3-25 above, the alternatives analysis in the Final EIR/EIS is only required to relate to the Cadiz Project as a whole, and was not required to consider alternatives for each individual component of the Cadiz Project. Thus, a more detailed analysis of alternative locations for the project pumping stations was not necessary.

Due to the location of the water supply, only two pumping station sites were identified in the alternative analysis—the Iron Mountain Pumping Plant for the east corridor, and the West Portal for the west corridor. These are the only two feasible pump station locations to convey water from the Colorado River Aqueduct to the spreading basins. The location of the pump stations near existing water conveyance facilities results in the least environmental impact.

R3-27 Based on field studies, 27 categories of impact and technical feasibility information were used to score and rank the project-level alternatives. Raw data on these 27 measures were converted to relative scores. The relative importance of each of the 27 measures was then evaluated by a team of experts and each measure was given a weight. Raw scores were

multiplied by weights to produce a set of weighted scores. These weighted scores were then summed, allowing project alternatives to be compared quantitatively on the basis of individual and aggregate weighted scores. For convenience, aggregate scores on all 27 measures were converted to a 0 to 1 scale, one being the highest (best) score. The Final EIR/EIS Volume I, Section 11 explains how the parameters were weighted and the analysis was re-run using three different weighting scenarios to ensure that there was no significant bias caused by the process. The Final EIR/EIS also describes each parameter in detail. The comment does not identify which of the 27 parameters the commentor believes is inadequately explained.

R3-28 "Existing environmental conditions" are fully disclosed in the Final EIR/EIS, Section 5. In addition, the No Project Alternative discussion clearly explains that it assumes the existing delivery priorities and distribution system would be maintained. See Final EIR/EIS Volume I, Section 4.8. The description of the existing environmental conditions need not be repeated under the heading "No Project Alternative." Therefore, this alternative is described in sufficient detail to meet the requirements of NEPA and CEQA.

R3-29 In general, the alignments are underlain by alluvial and gravel materials and, to a lesser extent, sand dunes. General assumptions on the construction of the water conveyance facilities are provided in Section 4 of the Final EIR/EIS Volume I for each of the alternatives proposed. For additional information see the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Project Feasibility and Facilities Report (Report No. 1162), Appendix A "Draft Preliminary Geological Assessment Report Alternative Pipeline/Canal Alignments Cadiz Groundwater Transfer and Conjunctive-Use Project."

R3-30 See Response to Comment R3-28.

R3-31 See Master Response "Groundwater Monitoring and Management Plan." Regarding the potential impacts from the combination of agricultural and Metropolitan withdrawals from the aquifer, see Response to Comment R3-52.

R3-32 Regarding comments relating to the groundwater consumption associated with full implementation of the agricultural project, see Response to Comment R3-52.

The Cadiz Project will not, as stated by comment, render "future agriculture infeasible." The Management Plan will ensure that agricultural irrigation water use is conducted without adverse impacts to groundwater-related critical resources.

The availability of water is only one factor that determines when agricultural uses would be expanded or reduced. While Cadiz is entitled to develop agricultural uses on as much as 9,600 acres, there is no minimum acreage that must be developed. Likewise there is no minimum acreage that must be developed in order to avoid a significant impact to agriculture. The County of San Bernardino General Plan's current land use designations allow for virtually the entire area surrounding the Cadiz Project to cultivate agricultural land uses including but not limited to row crops, vineyards and orchards.

R3-33 See Master Response "Groundwater Monitoring and Management Plan" and Responses to Comments R3-32 and R3-52.

R3-34 See Master Response "Groundwater Monitoring and Management Plan" regarding the operation of the project to avoid potential impacts to groundwater resources.

Regarding the County of San Bernardino General Plan goal to "Provide a balanced hydrological system in terms of withdrawal and replenishment of water from the groundwater basins," the County has participated in the development of the Management Plan for the purpose of ensuring compliance with all such applicable policies and ensuring that critical resources will not be subject to significant adverse effects as a result of Cadiz Project operations.

R3-35 See Master Response "Groundwater Monitoring and Management Plan."

R3-36 See Response to Comment R3-32.

R3-37 Comments noted. See responses to comments R3-58 to R3-66, below.

R3-38 See Master Response "Groundwater Monitoring and Management Plan." The analysis of potential impacts to water resources presented in the Management Plan and Final EIR/EIS is not premised on an estimate of the "natural groundwater recharge rate." Instead, all Cadiz Project operations, including extraction of groundwater, would be governed by and subject to the provisions of the Management Plan that is incorporated in the Final EIR/EIS.

R3-39 See Master Response "Groundwater Monitoring and Management Plan" regarding the measures that will be undertaken to monitor and avoid adverse impacts. BLM and Metropolitan believe that the presentation of these measures in the Draft EIR/EIS and Final EIR/EIS comply with the requirements of NEPA and CEQA.

R3-40 See Response to Comments R3-58 to R3-66.

R3-41 In response to the differences in opinion referenced in this comment, BLM and Metropolitan developed the Groundwater Monitoring and Management Plan that is incorporated into the project. This Management Plan was developed in consultation with the NPS, USGS, and County of San Bernardino. The project will be operated in accordance with the Management Plan, which will govern the amount of water that may be stored or extracted without causing adverse impacts to critical resources.

For further descriptions of the Management Plan, see the Master Response "Groundwater Monitoring and Management Plan," and the Management Plan, Volume IV of the Final EIR/EIS.

R3-42 Regarding potential impacts to Bristol and Cadiz dry lakes see Master Response "Air Quality." Also see Section 5.5 of the Final EIR/EIS Volume I for a description of the monitoring features that will be implemented to identify and avoid potential impacts to water levels under the dry lakes.

R3-43 See Master Response "Groundwater Monitoring and Management Plan." A more detailed discussion of impacts, that is adequate for the purposes of CEQA and NEPA, is set forth in Section 5.5 of the Final EIR/EIS Volume I.

R3-44 See Master Response "Water Quality." Section 7.2.1 of the Management Plan requires monitoring of water quality to ensure that it meets the requirements of the California

Regional Water Quality Control Board, Colorado River Basin Region, the agency responsible for regulating water quality relating to the storage of water in the aquifer system underlying the project area.

R3-45 Comments noted. See Responses to Comments R3-67 to R3-79, below.

R3-46 Comments noted. See Responses to Comments R3-80 to R3-89, below.

R3-47 Comments noted. No response is necessary.

R3-48 Comments noted. See responses to comments R3-90 to R3-104, below.

R3-49 See Master Response "Growth Inducement." The conclusions reached in the Growth Inducement Impacts section (Section 6 of the Final EIR/EIS Volume I) are not insufficient simply because the commentor disagrees with them. Use of data developed by regional service and planning agencies such as SCAG, and SANDAG is a generally accepted way of determining anticipated growth and demand for certain types of services. Such data is not less valuable or accurate because it was developed prior to the inception of the Cadiz Project. As the discussion in Section 6 demonstrates, growth projections for Southern California anticipate that projected growth will occur despite shortfalls in water supply, heavy traffic, poor air quality and other factors which are sometimes considered growth limiting. The Cadiz Project responds to this projected growth and anticipated demand; it does not induce it.

R3-50 See Response to Comment R3-49 and Master Response "Growth Inducement."

R3-51 BLM and Metropolitan disagree with the opinion that the Final EIR/EIS Growth Inducement analysis is flawed, as it is based on extensive data regarding projected and historic growth rates in southern California. Section 6 describes the growth forecasts relied upon by regional agencies for planning purposes, including the growth management plans adopted by regional agencies such as Southern California Association of Governments (SCAG), San Bernardino Association of Governments (SANBAG), and San Diego Association of Governments (SANDAG). In the case of *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, cited in the comment, the water agency relied upon growth projections that were included in an unadopted county general plan. The growth projections referenced in the Final EIR/EIS are from adopted growth management plans that were subject to separate CEQA compliance. Furthermore, Metropolitan cites the historic fact that population growth in southern California has continued unabated during periods of drought in which significant water conservation measures were required. The Final EIR/EIS properly concludes that the evidence supports the determination that growth in southern California is driven by economic and social factors (jobs and housing), and that the water supply is neither growth inducing nor a constraint on growth. See Master Response "Growth Inducement."

R3-52 As stated in the Management Plan, Section 1.3 and as shown in Figure 3-1 Cadiz Inc. farms approximately 1,600 acres of its landholding located within the project area. In 1993, San Bernardino County certified a Final Environmental Impact Report (FEIR) and granted various land use approvals for expansion of agricultural operations on this property up to 9,600 acres. As a component of this approval, the County identified specific groundwater monitoring activities to be undertaken by Cadiz Inc. To comply with these monitoring requirements, the Cadiz Valley Agricultural Development Ground Water Monitoring Plan

was developed in cooperation with San Bernardino County to monitor all potential environmental impacts that could result from the agricultural irrigation. Cadiz agricultural operations were considered in the Final EIR/EIS in Section 5.1 and the impacts of water usage by the agricultural operations fully considered as part of the baseline for the Cadiz Project.

A specific discussion of the cumulative impacts of the Cadiz agricultural operations is contained in Section 7 of the Final EIR/EIS as follows:

"With approval and implementation of the Cadiz Project, all future groundwater use for irrigation in the project area, including any existing or future expansion of the Cadiz Valley Agricultural Development, will also be conducted without adverse impacts to critical resources in accordance with the Management Plan. The Management Plan provides for a comprehensive program of monitoring designed to ensure that project operations, including future irrigation under the Cadiz Valley Agricultural Development, would be conducted without adverse impact to any critical environmental resources in and surrounding the project area. Thus, with implementation of the Cadiz Project and Management Plan, any potential adverse impact of the Cadiz Valley Agricultural Development would be fully mitigated to below a level of significance."

All use of indigenous groundwater for current and potential future agricultural operations will be conducted without adverse impacts to critical resources in accordance with the Management Plan. Therefore, the mitigation necessary to avoid significant impacts to water resources is provided and there would be no significant adverse cumulative impacts to critical resources from the project when combined with current and potential future agricultural operations.

R3-53 The Cumulative Impacts section of the Final EIR/EIS appropriately considered as potential cumulative projects those within the general vicinity of the Cadiz-Fenner Valleys because it is within this geographic area that any cumulative impacts of the Cadiz Project will occur. Projects considered in the cumulative impact analysis are those that are related to the Cadiz Project through a physical element of the environment or a physical impact to the environment. Examples are projects that occur in the same watershed, same aquifer, same air basin or same biological communities. The regional context suggested in the comment refers only to governmental boundaries and not to any physical feature of the environment. It would not have been reasonable, appropriate or indeed even practicable under CEQA and NEPA for the Final EIR/EIS to have considered the likely hundreds of past, present and probable future projects within San Bernardino, Riverside and Imperial Counties, or in all of Southern California.

In addition to the specific projects noted in the comment, the Inland Feeder Project and Eastside Reservoir Project were not considered in the Cumulative Impacts section because they are each located over 100 miles away from the proposed Cadiz Project with several intervening mountain ranges between them and the project. Thus, the impacts from these projects would not reasonably combine with the impacts from the Cadiz Project in any way.

R3-54 Comments noted. See Responses to Comments R3-58 to R3-66, below.

R3-55 Comments noted. See Responses to Comments R3-67 to R3-79 below.

R3-56 Comments noted. See Responses to Comments R3-80 to R3-89, below.

R3-57 Comments noted. See Responses to Comments R3-90 to R3-104, below.

R3-58 – R3-66. Comments R3-58 through R3-66 are noted. Comments R3-58 through R3-66 consist of the February 21, 2000 comments prepared by Timothy Durbin and John Foster for the County of San Bernardino and appended to the County of San Bernardino letter of comment on the Draft EIR/EIS. The County of San Bernardino assisted in preparation of the Supplement to the Draft EIR/EIS and the Management Plan, Volume IV of the Final EIR/EIS with BLM and Metropolitan to address the concerns raised in the Durbin/Foster comments. Therefore, such comments are responded to by those documents. See Master Response "Groundwater Monitoring and Management Plan" for a description of how the Management Plan operates to protect the groundwater resources referenced in the comments.

R3-67 An additional mitigation measure (T-5) is included in the Final EIR/EIS. This mitigation measure will require Metropolitan to execute a Memorandum of Understanding (MOU) with the County of San Bernardino to address the County's requirements regarding Metropolitan's obligations for mitigation of the temporary impacts of the Cadiz Project construction traffic. To mitigate these impacts, Metropolitan would agree to pay a specific amount to be negotiated with the County. These funds would be used at the County's discretion for needed permanent improvements in the general project vicinity. Mitigation Measure T-5 states:

> "Prior to any construction on Cadiz-Rice Road between SR 62 and Chubbuck, Metropolitan will enter into a Memorandum of Understanding with the County of San Bernardino to address the County's requirements regarding Metropolitan's obligations for mitigation of the temporary impacts of the Cadiz Project construction traffic. To mitigate these impacts, Metropolitan will agree to pay a specific amount to be negotiated with the County."

R3-68 Comments noted. See Response to Comment R3-67 above.

R3-69 Comments noted. See Response to Comment R3-67 above.

R3-70 Comments noted. See Response to Comment R3-67 above.

R3-71 Comments noted. See Response to Comment R3-67 above.

R3-72 Comments noted. See Response to Comment R3-67 above.

R3-73 Comments noted. See Response to Comment R3-67 above.

R3-74 Comments noted. See Response to Comment R3-67 above.

R3-75 Comments noted. See Response to Comment R3-67 above.

R3-76 Comments noted. See Response to Comment R3-67 above.

R3-77 Comments noted. See Response to Comment R3-67 above.

R3-78 Comments noted. See Response to Comment R3-67 above.

R3-79 Comments noted. See Response to Comment R3-67 above.

R3-80 Comments noted. See Responses to Comments R3-81 to R3-89, below.

R3-81 The field reconnaissance was specifically detailed for this project. A review was conducted of each of the potential sensitive resources. The period that these resources could be identified was ascertained. Survey schedules were then specifically targeted to maximize the potential for identifying these species. Focused surveys have been conducted for desert tortoise throughout all project alternatives according to survey protocol approved by the USFWS and CDFG. Please refer to the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report, Biological Resources Report (Report No. 1164), and the Desert Tortoise Biological Assessment for the Cadiz Groundwater Storage and Dry-Year Supply Program.

R3-82 The entire project area was systematically walked (using transects) during focused surveys for the desert tortoise. The intensive survey methodology required by the USFWS for this species would also have resulted in the detection of a variety of mammal species within the project. Potential den/foraging sites for the American badger were found within the Western and Eastern alternatives, and all alternatives will impact potentially suitable habitat for this species. Therefore, potential impacts to the American badger have been anticipated. No sign, tracks, or scat of Yuma mountain lion or Nelson's bighorn sheep were observed. Because suitable habitat for mountain lion has been identified throughout all alternatives, and potentially suitable habitat for the bighorn sheep occurs in the vicinity of the southern transmission lines (Western and Combination Alternatives) it is highly possible that these mammal species may utilize the site during home range movements. Because of the paucity of sign, however, these species' occupation and/or utilization of the site are not anticipated to be of a high frequency or duration. As a result, potential impacts to Yuma mountain lion and Nelson's bighorn sheep are not significant. See the Cadiz Groundwater Storage and Dry Year Supply Program Environmental Planning Technical Report Biological Resources (Report No. 1164).

R3-83 Mojave wash scrub occurs in numerous washes that span the project area and overall region. Alternatives have been presented, which differ in their impact of this habitat; however, due to the ubiquity of this resource, it is inevitable that this habitat will be impacted to some extent. The current alternatives all include perpendicular crossings of washes and the wash scrub they contain. This approach is the least impactive when proposing to modify sensitive, relatively linear habitats (e.g., drainages).

R3-84 The sensitivity of the habitat types within the project site has been discussed in detail. See Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Technical Report, Biological Resources Report (Report No. 1164). All native habitats permanently and temporarily impacted by the proposed project will be mitigated at a 1:1 ratio through offsite habitat acquisition and preservation. This compensation is intended to mitigate for the loss of sensitive habitats within the project footprint and will provide suitable habitat for the desert tortoise. Three alternatives were evaluated, which included fairly substantive realignments. Due to the distribution of these resources, it is infeasible to avoid impacts to these resources.

R3-85 As indicated in the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Technical Report, Biological Resources Report (Report No. 1164), 22 plants and 39 animal species of special interest have the potential to occur within the project site. Among the special interest plants, none are listed as federal/state threatened or endangered, and only one species was actually found in the project site (ribbed cryptantha). Out of the

39 sensitive animal species presented, the only listed (federal/state threatened or endangered) species found or detected within the project site was the desert tortoise; however, suitable habitat is present for several other potentially occurring wildlife that were not observed during surveys.

R3-86 See Master Response "Groundwater Monitoring and Management Plan" regarding the measures that will be implemented to avoid impacts to water resources.

R3-87 See Response to Comment S4-2.

R3-88 The project site is not located within the designated area of the San Bernardino MSHCP (personal conversation, Lisa Northrope, San Bernardino County Land Use Planning). Therefore, because it is not located within the sub-area boundaries of the program, conformance with the program is not addressed in the Final EIR/EIS. Neither is the project located within the West Mojave Plan planning area.

R3-89 See Master Response "Growth Inducement." As presented in Section 7 of the Final EIR/EIS, there is no current development activity in the Cadiz Project area. Thus, this project would not result in cumulative impacts other than those impacts presented for the project. Cumulative impacts have been analyzed in the context of several regional plans, such as those prepared by the Southern California Association of Governments (SCAG), the San Bernardino Association of Governments (SANBAG) and the San Diego Association of Governments (SANDAG). The proposed project will be coordinated and consistent with these plans and will implement a mitigation program that preserves plant and animal habitats under the guidance of the California Department of Fish and Game, the U.S. Fish and Wildlife Service and the BLM. As a result of this mitigation effort, impacts associated with the project would be offset; therefore, no cumulative loss of biological resources is anticipated to occur.

R3-90 Comments noted. See Responses to Comments R3-91 to R3-104, below.

R3-91 As is discussed in Section 5.16.1 of the Final EIR/EIS Volume I, a paleontological survey was conducted for the project area including both the pipeline alternative routes and the spreading areas. The survey consisted of walking the project areas with two-person teams spaced 50 feet apart. The survey identified 23 fossils contained in alluvium soils, carbonate soils, and paleosols. Identified fossils included flamingo, goose, mammoth, camel, horse, coyote, antelope, jack rabbit, ground squirrel, kangaroo rat, and freshwater snail. No technical report was prepared. Rather, the information gathered by the survey teams was used directly to prepare Section 5.16 of the Final EIR/EIS. Table 5.16-1 of the Final EIR/EIS lists the fossil locations identified during the survey. Figure 5.16-1 identifies the locations of soil types in which fossils were located.

R3-92 Table 5.16-1 lists the locations of fossils identified during the initial survey. For protection of these fossil resources, the types of fossils found at each location were not included in the Final EIR/EIS. The accession inventory, including fossil type and exact location, will be supplied to the San Bernardino County Museum when the resources are curated.

R3-93 The paleontologists obtained the appropriate permits from the Bureau of Land Management prior to conducting the survey as required by the Antiquities Act. It is the BLM and Metropolitan's full intention to curate the fossils with the San Bernardino County Museum.

Fossils will be submitted with a list of fossil types, maps of fossil locations, and copies of the appropriate permits acquired before the survey was conducted.

R3-94 Comment noted. Tables ES-4, 1-1 and 13-1 of the Final EIR/EIS have been modified to include permits required to conduct paleontological surveys prior to collecting fossils during construction activities on BLM land. The permitting agency is the BLM.

R3-95 The Society of Vertebrate Paleontology (SVP) Guidelines include standard methods for collecting and recording paleontological resources. As such, the Final EIR/EIS notes that these standards were followed during the initial survey conducted for the CEQA process. The survey team also followed BLM requirements including obtaining a permit to collect paleontological resources on BLM lands. San Bernardino County Museum Guidelines were used to establish significance thresholds for the analysis required by CEQA.

R3-96 Comment noted. The San Bernardino County Museum has not published mitigation guidelines for the collection of paleontological resources so it will not be added to the references in Section 15 of the Final EIR/EIS.

R3-97 The CEQA statutes Public Resources Code (Section 21083.2(e)) provide for a financial cap for the recovery of archaeological resources not to exceed ½ of one percent of the total cost of the project. In the spirit of this provision, Metropolitan and BLM have established a similar financial cap in Mitigation measure P-6 (costs not to exceed ¼ of one percent of the total cost of the project) for paleontological resources with respect to this project. It is the opinion of Metropolitan and BLM that Mitigation Measure P-6 in the Final EIR/EIS provides for a sufficient financial commitment to adequately protect paleontological resources in the project areas. This notwithstanding, the Final EIR/EIS acknowledges that with a construction project of this size, some paleontological resources are bound to be irrevocably damaged, thereby constituting a significant, unavoidable impact of the project.

R3-98 The mitigation measures provided in the Final EIR/EIS will adequately protect paleontological resources within the project areas. However, the Final EIR/EIS acknowledges that due to the scope of the project, disturbance of paleontological resources is expected. The project involves trenching through extensive open space areas containing substantial paleontological resources. The project areas constitute a small portion of the open space areas. As such, the anticipated fossil discoveries within the construction areas would not be unique in the area. Mitigation Measures P-1 through P-5 provide for a full-time paleontological monitor to be present during construction in areas with high probabilities of containing paleontological resources. Based on the initial field survey and literature search, those areas constitute most of the construction areas. Final EIR/EIS Volume I, Figure 5.16-1 identifies those areas. Some areas with high fossil-bearing potential may be covered by alluvial soils of adequate thickness to avoid impacts of the project. Mitigation measure P-2 requires the monitor to investigate these areas during construction and document that fossil-bearing formations are deeper than the excavations. Only after this assertion would the paleontological monitor not be present during construction.

The mitigation measures contained in the comment are measures recommended by the County of San Bernardino for every construction project in the County. The measures are recommended guidelines. As such, individual construction projects are expected to adapt the measures to suit the scope of the project. Mitigation measures P-1 through P-6 provide for monitoring, fossil collecting, and curating procedures that do not conflict with the

recommended guidelines. Survey methods and curation policies recommended by the County of San Bernardino will be followed where feasible.

R3-99 See Response to Comment R3-98.

R3-100 See Response to Comment R3-98.

R3-101 See Response to Comment R3-98.

R3-102 See Response to Comment R3-98.

R3-103 See Response to Comment R3-98.

R3-104 See Response to Comment R3-98.

R4 RESPONSES TO COMMENTS FROM THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY DATED MARCH 8, 2000.

R4-1 Comments noted.

R4-2 The discussion of the need for the Cadiz Project is clarified in the Final EIR/EIS Volume I, Section 2.5.3 to reflect that the project contributes to Metropolitan's ability to meet the objectives of the California 4.4 Plan.

R4-3 The referenced shortfall does include a San Diego County Water Authority – Imperial Irrigation District (SDCWA-IID) proposed water transfer. The Final EIR/EIS Volume I, Section 2.6.2, and Table 2-7, identify the SDCWA- IID transfer ranging between 130,000 to 200,000 acre-feet.

With regard to the demonstration project with Palo Verde Irrigation District (PVID), it would be difficult to quantify the actual cost of that project to Metropolitan because all the water that was to be supplied under this demonstration project was lost to Colorado River flood release.

R4-4 Without the project it is anticipated that there would be increased shortfalls of up to 150,000 acre-feet during dry years. Interruptible water sales programs would be called upon to make up for such shortfalls.

R4-5 Groundwater storage programs within Metropolitan's service area are discussed in Section 2.5.4 of the Final EIR/EIS Volume I.

R4-6 Fine-grained sediment would be removed from the bottom of the spreading basins using heavy equipment. Such material that was suitable for agricultural purposes would be applied to cultivated Cadiz Inc. agricultural lands. Any such material that is not suitable for agricultural uses would be disposed of at an appropriate landfill. The potential impacts of spreading basin operations on air quality are discussed in Section 5.6.4 of the Final EIR/EIS. During such operations, watering will be used to mitigate the effects of dust (Mitigation Measure AQ-8).

R4-7 The potential for conditions to be appropriate for the creation of wetlands habitat to occur is unlikely. Ongoing maintenance and operation of the spreading basin will not create or allow for the creation of a favorable environment for wetlands habitat. It is anticipated that for

much of each year, spreading basins will be completely dry. During periods of storage of Colorado River Aqueduct water the basic operation of the spreading basin would involve a continuous cycling of water entering into spreading basin cells. Water will percolate down through the permeable surface at a rate of approximately 2 to 4 feet per day. During periods of storage, cells will be routinely taken out of service and dried out for maintenance. Spreading basins will at all times be devoid of vegetation and fine-grained sediments, if present at the bottom of a spreading basin cell, will be removed using heavy equipment.

R4-8 Comment noted.

R4-9 Comments noted. No response necessary

R4-10 Comments noted. No response necessary.

B1 RESPONSES TO COMMENTS FROM ALL AMERICAN PIPELINE, L.P. DATED JANUARY 31, 2000.

B1-1 The change in status of the 30-inch diameter pipeline is reflected in the Final EIR/EIS, Sections 5.5.4 and 5.13.1. The pipeline is now owned and operated to convey natural gas by El Paso Natural Gas Company in place of All American Pipeline, L.P.

B1-2 Comments noted. See Response to Comment B1-1.

B1-3 Comment noted. Thank you for the updated information.

B2 RESPONSES TO COMMENTS FROM THE NATIONAL CHLORIDE COMPANY OF AMERICA DATED DECEMBER 26, 1999.

B2-1 Comments noted. See responses to comments B2-2 and B2-3, below.

B2-2 See Master Response "Groundwater Monitoring and Management." Corrective measures described in Section 7.3.1 of the Management Plan to avoid impacts to brine resources include, but are not limited to, the delivery of Colorado River water, if available, to the project spreading basins.

B2-3 Comments noted. No response is necessary.

B3 RESPONSES TO COMMENTS FROM SILVER VALLEY REALTY DATED DECEMBER 11, 1999.

B3-1 The Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Project Feasibility and Facilities Report (Report No. 1162) identifies the location for the project spreading basins. No other feasible locations are known. If it were feasible to build the wellfield and spreading basins next to the existing Colorado River Aqueduct the potential for avoided construction costs would include a portion of the cost of the conveyance pipeline and pump station facilities.

B3-2 See Response to Comment B3-1. It is not feasible to use the majority of BLM managed lands further south of the spreading basins because such land is contained in designated wilderness areas or overlies dry lake beds unsuitable for project facilities. Therefore the pipeline cannot be made shorter.

B3-3 See Response to Comment B3-1. The screening process utilized to identify potential projects is described in Section 3.4 of the Final EIR/EIS Volume I. These included ten groundwater storage and conjunctive-use projects, one transfer project and two projects involving desalination of agriculture drainage water.

B3-4 The potential impacts to wells owned by neighboring landowners due to project operations is discussed in Section 5.5.4 of the Final EIR/EIS Volume I. A summary of the types of monitoring features, as well as monitoring frequencies is provided in Table 1 of the Management Plan; a summary of monitoring features and testing protocols is provided in Table 2; and, locations of monitoring facilities are shown in Figures 4 and 5. Section 6.2 identifies monitoring, testing and reporting procedures relating to the aquifer system, including the potential for impacts to wells owned by neighboring landowners. Section 7.2.2 describes the applicable action criteria, decision-making process and corrective measures.

B3-5 No water level information from the turn of the century is available for any of the Chambless area wells. The earliest published water levels were reported in Shafer, 1964 based on data collected between 1960 and 1962. These water levels ranged from approximately 592 to 608 feet above mean sea level (see Shafer, 1964; water well data sheets for Wells 6N/14E-31J1, 6N/14E-31K3 and 6N/14E-31x2). The 1999 groundwater level for 6N/14E-31J1 ranged from approximately 596 to 592 feet above mean sea level (Cadiz Inc., Groundwater Well Monitoring Annual Report, 1999).

B3-6 Metropolitan could solely construct and operate the project.

B3-7 This technical report is available for public review at five public libraries, at the offices of the BLM in Needles and in Riverside, and at the office of Metropolitan.

B3-8 Comment noted. No response is necessary.

B4 RESPONSES TO COMMENTS FROM CLAYPOOL'S TRUE VALUE HARDWARE DATED DECEMBER 11, 1999.

B4-1 Comments noted. No response is necessary.

B5 RESPONSES TO COMMENTS FROM TATE AND ASSOCIATES, FOR THE ARIZONA AND CALIFORNIA RAILROAD, DATED FEBRUARY 21, 2000.

B5-1 Comments noted. See responses to comments B5-2 to B5-4, below.

B5-2 See Master Response "Groundwater Monitoring and Management." Sections 5.8 and 5.9 of the Management Plan describe the monitoring features that include measurements of surface elevations to identify potential land subsidence. Section 7.2.3 describes the procedure that will be followed to avoid land subsidence. Annual and Five-Year reports containing all monitoring data and analysis will be provided as described in Section 6.8 of the Management Plan. Report information will include electronic data files and will be available to the general public. All such information will routinely be made available to the public.

B5-3 Section 5.7.4 of the Final EIR/EIS provides that Metropolitan will coordinate construction with the railroad.

B5-4 Comments noted. No response is necessary.

B6 RESPONSES TO COMMENTS FROM SF PACIFIC PROPERTIES, INC. DATED MARCH 8, 2000.

B6-1 Comments noted. No response is necessary.

B6-2 The mitigation ratio contained in the Final EIR/EIS for temporary and permanent impacts to habitat lands is consistent with requirements of BLM, USFWS and CDFG.

B6-3 Comments noted. In response to the concerns raised by the USGS, BLM and Metropolitan have developed the Management Plan that is incorporated in the Final EIR/EIS. For a description of the Management Plan see Master Response "Groundwater Monitoring and Management Plan."

B6-4 See Master Response "Need for a Supplement/Recirculation."

B6-5 Comments noted. No response is necessary.

B6-6 Comments noted. No response is necessary.

G1 RESPONSES TO COMMENTS FROM THE NATIONAL PARKS CONSERVATION ASSOCIATION DATED FEBRUARY 14, 2000.

G1-1 See Response to Comment Report F2-4.

G2 RESPONSES TO COMMENTS FROM THE MORONGO BASIN CONSERVATION ASSOCIATION INC. DATED FEBRUARY 18, 2000.

G2-1 Comments noted. No response is necessary.

G2-2 See Master Response "Need for Supplement/Recirculation."

G2-3 The California Environmental Quality Act ("CEQA") Guidelines provide specific criteria for choosing a lead agency for projects to be implemented by a public agency. Section 15051 of the CEQA Guidelines states the following:

"Where two or more public agencies will be involved with a project, the determination of which agency will be the lead agency shall be governed by the following criteria:

(a) If the project will be carried out by a public agency, that agency shall be the lead agency even if the project would be located within the jurisdiction of another public agency."

Consequently, although the project is situated on land that is outside of Metropolitan's district, the project will be "carried out" by Metropolitan. Pursuant to CEQA guidelines, Metropolitan is designated the CEQA lead agency.

G2-4 The Cadiz Groundwater Storage and Dry-Year Supply Program is a conjunctive use storage and transfer project that will store raw water from the Colorado River and may transfer indigenous groundwater from the Cadiz area. Metropolitan would have the right to recapture water imported from the Colorado River and stored in the groundwater basin underlying the project site. As to the transfer of indigenous groundwater, Metropolitan would exercise the right under California law to appropriate groundwater for non-overlying uses, including exportation for use outside the groundwater basin.

G2-5 The water rights for the Colorado River are allocated in accordance with a series of federal and state statutes, United States Supreme Court decisions, and an international treaty with Mexico. Collectively known as the "Law of the River," these laws allocate a total of 4.4 million acre-feet of water annually, together with one-half of any surplus water, to California. A description of Metropolitan's share of the California allocation is set forth in Section 2.3.5 of the Final EIR/EIS Volume I. A more detailed analysis of the Law of the River is set forth in the Final Environmental Impact Statement for the Colorado River Interim Surplus Criteria (December 2000) prepared by the U. S. Bureau of Reclamation.

G2-6 California's annual allocation of 4.4 million acre-feet of Colorado River water is embodied in the Law of the River and will not change over the fifty year life of the project. However, the distribution of this water within California may change in the future as water agencies work to reduce the amount of Colorado River water used. The Colorado River Board of California has developed a draft Colorado River Water Use Plan (May 2000), which describes projects that may be implemented to achieve the goal of bringing California's use down to 4.4 million acre-feet. A description of California's historic usage of Colorado River water and the draft plan to reduce that use is set forth in Section 2.5.3 of the Final EIR/EIS Volume I.

G2-7 See Master Response "Groundwater Monitoring and Management Plan." Section 5.5.4 of the Final EIR/EIS Volume I analyses the potential impacts to the aquifer system (including neighboring wells) due to groundwater level fluctuations related to Cadiz Project operations. The communities nearest the project area are Chambless (six miles), Amboy (15 miles), and Essex (20 miles).

Amboy, which is located north of Bristol Dry Lake, is separated from the project area by brine-saturated sediments and salt deposits underlying Bristol Dry Lake. Consequently, there is no potential for continuity of potable groundwater in the project area with groundwater beneath this community. The community of Essex is located in Fenner Valley, approximately 20 miles up-gradient from the project spreading basins and wellfield. Although there is continuity between the aquifer systems underlying the project area and Essex, all the wells in the Essex area are located beyond and up-gradient of what is anticipated to be the maximum area of influence of project operations. To ensure that there will be no significant adverse impacts to wells located in the community of Essex, the Management Plan includes specific provisions (Sections 6.2 and 7.2.2 of the Management Plan) to monitor wells in the area, and to modify project operations if necessary.

The community of Chambless, located approximately six miles from Fenner Gap, is underlain by groundwater that is in hydraulic continuity with that of the project area. As a result, there is potential for project groundwater operations to impact wells in the Chambless area. To ensure that there will be no significant adverse impacts to wells owned by neighboring landowners, the Management Plan includes specific provisions, described above, to monitor wells and modify project operations, if necessary, to avoid adverse impacts.

The project has no effect on the allocation of Colorado River water within California or between California and other states. Therefore, there are no impacts on Colorado River water rights resulting from the project.

G2-8 Comment noted. Final EIR/EIS Figures 2-1 and 2-2 are provided to clearly show the Metropolitan member agencies.

G2-9 Metropolitan supports the California Urban Water Conservation Council (CUWCC) adopted Best Management Practices (BMP's). These fourteen measures ensure that water conservation is "built in" to residential, commercial, institutional and industrial water use in southern California. These standards for water conservation have been developed for the urban areas of the state and may meet or exceed existing "desert community standards." Metropolitan does not place any limits on water conservation. The assumptions for reliable measurement of water conservation savings are updated every three years.

1. As a wholesale water supplier, Metropolitan has no retail customers. However, all interagency water service connections are metered. Any new water agency supplied by Metropolitan likewise would be metered.
2. Metropolitan does not control or issue any building permits.
3. As a wholesale water supplier Metropolitan relies on its member agencies to develop and enforce local and regional water conservation efforts including car-washing restrictions.
4. Metropolitan's Conservation Credits Program, established in 1988, provides financial and technical assistance to member agencies for implementing the water conservation BMP's listed in the CUWCC MOU, as well as other programs. Metropolitan pays the lesser of one-half the program cost or the equivalent of $154 per acre-foot of water saved. A variation of this policy provides funding for the ULF toilet replacement programs at a rate of $60 per toilet replaced.

G2-10 Metropolitan's water conservation incentives were developed for its member agencies. These incentives may not be the same as those offered by your local water supplier. Any water supplier is welcome to contact Metropolitan (Ms. Barbara Nadon, 213-217-6000) to discuss any assistance Metropolitan can provide to your organization or local water suppliers.

G2-11 Conservation activities are closely coordinated with Metropolitan's External Affairs Group. The following table summarizes the major conservation related activities of BMP 7:

Program or activity	Description
Public Speaking Services	Provides speakers for organizations, service clubs, churches, businesses and other community groups and associations. It is estimated that these presentations attract between 15,000 and 20,000 people annually.
Community Relations	Organizes and conducts inspection trips of Metropolitan's distribution system for elected officials, community leaders and members of the public. Several hundred people learn about Metropolitan's conservation and water management policies and practices each year through these trips.
Media and Publications	Conducts editorial briefings and media field trips; assembles press packets; prepares and disseminates news releases, speeches, videos, fact sheets, brochures, articles, water management objectives and programs.
Government Relations	Provides elected officials, public agencies, businesses and organizations with information about Metropolitan's water management objectives and programs.

In addition, Metropolitan maintains an extensive commitment to BMP 8's conservation related education programs. Contact Mr. Adán Ortega (213-217-6000) for additional information on Metropolitan's School Education Programs.

G2-12 Residential retrofit, home audit, leak detection, and landscape water audit programs are ongoing at Metropolitan regardless of the shortage or surplus conditions in any one year.

G2-13 The Williamson Act (Government Code section 51200 *et seq.*) was adopted by the California State Legislature to reduce the real estate tax burden on owners of farm land to preserve agricultural land uses in the state. The Williamson Act allows owners of prime agricultural land to contract with the cities or counties in which they are located to limit the use of their lands to agricultural purposes for a period of ten years. The contracts are automatically renewed for a standing ten-year period after the end of each year. The contracts can be allowed to expire over a ten-year period by filing a notice of intent not to renew or can be cancelled on mutual agreement of all parties to the contract and the State. As stated in the Final EIR/EIS, there are no Williamson Act contract lands in the Cadiz Project area. Therefore, the project will have no impact on such lands.

G2-14 As provided for in the Final EIR/EIS (mitigation measures B-26 and B-33), all native habitats (excluding agriculture) permanently and temporarily impacted by the proposed project will be replaced at a ratio of 1:1. The offsite habitat that will be purchased will be commensurate to, or exceed the quality of that which is impacted. The ultimate determination of suitable habitat for acquisition will be made in coordination with the BLM and CDFG. Mitigation lands will be acquired after certification of environmental documentation and approval to proceed with the project.

G2-15 Preparation of a Groundwater Monitoring and Management Plan was identified as mitigation measure WR-1 in the Draft EIR/EIS. In response to comments received on the Draft EIR/EIS, the Supplement was circulated from October 20, 2000 to January 8, 2001 to provide the public with the opportunity to review and comment on clarifications to Cadiz

Project water resources information, including the Management Plan. The Management Plan has been prepared by the BLM, NPS, USGS, Metropolitan, County of San Bernardino, and Cadiz Inc. The NPS and USGS became cooperating agencies pursuant to NEPA for purposes of preparation of the Supplement to the Draft EIR/EIS and the Final EIR/EIS.

Under the Cadiz Project, the transfer of indigenous groundwater to the Colorado River Aqueduct could occur, but only in compliance with the provisions of the Management Plan that were developed to avoid adverse impacts.

For additional information see Master Response "Groundwater Monitoring and Management Plan."

G2-16 There are differences of opinion regarding the age of the groundwater. For that reason, the Final EIR/EIS Volume I, Section 5.5.1, provides that additional isotopic sampling and analysis will be conducted on groundwater samples from production wells and observation wells during the pre-operational phase of the project to refine estimates of the age of the indigenous groundwater.

G2-17 BLM and Metropolitan have developed the Management Plan, incorporated into the project, to provide a monitoring and management procedure to avoid adverse impacts. For further details, see Master Response "Groundwater Monitoring and Management Plan."

G2-18 Section 8 of the Management Plan provides for a Closure Plan to govern project storage and extraction in a manner that ensures no residual effects of the project will result in adverse impacts to critical resources. The maximum allowable decline from pre-operational static groundwater levels is 100 feet at the end of project operations, or any lesser decline that would be required to avoid adverse impacts. During the operational phase, groundwater level declines could potentially be greater than this amount, however, no amount of groundwater level decline will be permitted that does not comply with the requirements of the Management Plan.

Groundwater levels will be monitored regularly, as described in Section 6.2.1 of the Management Plan. A summary of the monitoring features and frequencies is set forth in Table 1, and the locations of the monitoring facilities are shown on Figures 4 and 5, of the Management Plan. See Master Response "Groundwater Monitoring and Management Plan" for additional information.

G2-19 An analysis of the potential impacts from migration of saline groundwater due to project operations is set forth in Section 5.5.4 of the Final EIR/EIS Volume I. A description of the Management Plan provisions that relate to migration of saline groundwater is set forth in Sections 6.2, 6.3, 7.2.6, and 7.3.1 of the Management Plan.

G2-20 Section 7 of the Management Plan sets forth the procedures for operating the project in accordance with monitoring to identify potential adverse impacts, and action criteria and corrective measures to avoid adverse impacts. The procedures and authority for making and implementing decisions under the Management Plan are described in Sections 7, 9, and 10.

G2-21 See Master Response "Water Quality." As described in Section 6.2.2 of the Management Plan, water quality analyses will be conducted weekly at Lake Havasu during periods when Colorado River water will be stored in the basin. Section 7.2.1 identifies the action criteria and corrective measures related to spreading Colorado River water in the basin.

G2-22 The project is proposed to deliver water to the Colorado River Aqueduct during dry years and when the aqueduct is not full. Metropolitan relies on other facilities such as the newly constructed Diamond Valley Lake for emergency water storage and supply.

G2-23 The Management Plan was developed by BLM and Metropolitan as the lead agencies for the project; NPS and USGS as cooperating federal agencies; the County of San Bernardino; and Cadiz Inc. The Management Plan provides for a Technical Review Panel (TRP) made up of technical representatives from certain public agencies to provide technical assistance and recommendations to the BLM regarding the implementation of the Management Plan and operation of the project. The TRP is described in Section 9 of the Management Plan.

G2-24 See Response to Comment G2-23.

G2-25 The Technical Review Panel will convene as requested by the BLM. Its activities are described in Section 9 of the Management Plan. Although its meetings will not be public, the annual and five-year reports describing the operation of the project and monitoring under the Management Plan will be made public. These reports are described in Section 6.8.

G2-26 Comments noted. As noted in Response to Comment G2-25, all annual and five-year reports will be made available to the public.

G2-27 Comments noted. No response is necessary.

G3 RESPONSES TO COMMENTS FROM THE CALIFORNIA FARM BUREAU FEDERATION DATED FEBRUARY 22, 2000.

G3-1 Comments noted. No response is necessary.

G4 RESPONSES TO COMMENTS FROM THE CALIFORNIA/NEVADA REGIONAL CONSERVATION DESERT COMMITTEE DATED FEBRUARY 25, 2000.

G4-1 See Master Response "Groundwater Monitoring and Management Plan" regarding the Management Plan developed in response to concerns raised about groundwater recharge.

G4-2 The original public review period for the Draft EIR/EIS was extended from November 26, 1999 to February 23, 2000, a period of 90 days. The public review period was extended an additional 14 days, to March 8, 2000.

G5 RESPONSES TO COMMENTS FROM THE SIERRA CLUB (NO DATE)

G5-1 Comments noted. See Responses to Comments G5-2 to G5-6, below.

G5-2 See Master Response "Need for Supplement/Recirculation."

G5-3 There will be some losses of imported Colorado River water during the spreading operation due to evaporation when the water is in the spreading basins and exposed to the air. As described in the Final EIR/EIS Volume I, Section 5.5.4, the amount of water expected to evaporate from the project spreading basins will be approximately 3 percent of the total volume of water stored. For comparison, Lake Havasu, located on the Colorado River east

of the Cadiz Project area, loses approximately 22 percent of its capacity each year to evaporation.

G5-4 See Response to Comment G2-6. The Secretary of the Interior currently makes the annual determination of water supply conditions in consultation with the seven Basin States, Indian Tribes and other parties, as required by the "Law of the River." California's rights to water from the Colorado River are determined by the Law of the River, which includes international treaties, interstate compacts, federal and state laws, court cases, contracts and regulations. Metropolitan will continue to receive its share of Colorado River water under the Law of the River after 2015. In wet years, when the Secretary of the Interior determines that there is surplus water available, Metropolitan will be entitled to receive a share of the surplus. In addition, as described in Section 2.5.3 of the Final EIR/EIS Volume I, Metropolitan is working with other agencies in California that use Colorado River water to develop conservation programs and voluntary water transfers from agricultural to urban agencies. Through all of these measures, Metropolitan will continue to receive supplies of Colorado River water that may be stored for dry year use.

G5-5 In response to the differences in opinion referenced in this comment, BLM and Metropolitan developed the Groundwater Monitoring and Management Plan that is incorporated into the project. This Management Plan was developed in consultation with the NPS, USGS, and County of San Bernardino. The project will be operated in accordance with the Management Plan to avoid impacts to critical resources. For further descriptions of the Management Plan, see Master Response "Groundwater Monitoring and Management Plan."

G5-6 The Management Plan described in Response to Comment G5-5 is a comprehensive groundwater monitoring plan, that includes oversight by Metropolitan and BLM. The annual and five-year reports containing information on resources monitoring and project operations will be public documents. The Management Plan will also ensure that all agricultural water use on Cadiz Inc. lands in the project area will be conducted without adverse impacts to critical resources.

G6 RESPONSES TO COMMENTS FROM DESERT SURVIVORS DATED MARCH 5, 2000.

G6-1 Comments noted. A description of existing land uses in the project area is set forth in the Final EIR/EIS Volume I, Section 5.2.1. In addition to the uses described in the comment, land uses include existing and approved agricultural development and salt mining operations. Three separate interstate utilities are located within the project area. The project area also encompasses the Colorado River Aqueduct, the Iron Mountain Pumping Plant and community. Section 5.7 describes existing transportation infrastructure within and surrounding the project area. Figure 5.2.1 depicts land ownership within and surrounding the project area.

G6-2 In response to the differences in opinion referenced in this comment, BLM and Metropolitan developed the Groundwater Monitoring and Management Plan that is incorporated into the project. This Management Plan was developed in consultation with the NPS, USGS, and County of San Bernardino. The project will be operated in accordance with the Management Plan to avoid impacts to critical resources. For further information regarding the Management Plan, see Master Response "Groundwater Monitoring and Management Plan." Two potential projects, the Cadiz Valley Groundwater Storage Project (Draft EIR/EIS, page 3-4) and the Cadiz Valley Dry-Year Transfer Project (Draft EIR/EIS, page 3-10) were combined to meet the project objectives.

G6-3 See Master Response "Need for Supplement/Recirculation."

G6-4 Comments noted. See responses to comments G6-5 to G6-22, below.

G6-5 The BLM is authorized and required to manage the lands under its jurisdiction for multiple use and sustained yield. 43 U.S.C. §1732. Such uses include rights-of-way for pipelines for the transportation or distribution of water and systems for the transmission and distribution of electricity. 43 U.S.C. §1761. The BLM is fulfilling its obligations under the Federal Land Policy and Management Act (FLPMA) and the National Environmental Policy Act (NEPA), through the preparation of the environmental review documents and the Groundwater Monitoring and Management Plan. In particular, the Management Plan, which was developed in conjunction with the cooperating federal agencies, National Park Service and U. S. Geological Survey, provides a process for the operation of the project in a manner that avoids adverse impacts to critical resources.

G6-6 See Response to Comment G6-5. BLM is fulfilling its obligations as the lead federal agency to consider the proposed project in accordance with NEPA. BLM will also perform its legal responsibilities in connection with any exercise of its jurisdiction over the Hayfield Project that is separately being developed by Metropolitan.

The Groundwater Monitoring and Management Plan has been developed for the project and provides for the protection of groundwater related resources against project impacts. The Management Plan includes enforcement procedures for the BLM to ensure compliance with its provisions. For further information, see Master Response "Groundwater Monitoring and Management Plan."

G6-7 A comprehensive groundwater monitoring and management plan has been prepared. See the Management Plan volume of this Final EIR/EIS.

G6-8 All systems of water storage are subject to loss. Under the Cadiz Program, the amount of potential water losses would not approach the amount lost to evaporation from a surface reservoir in a similar environment. Underground storage of Colorado River water to limit evaporative losses is a benefit of the project. For comparison, Lake Havasu, located on the Colorado River east of the Cadiz Project area, loses approximately 22 percent of its capacity each year

Although there will be potential additional evaporative losses under the Cadiz Project if the stored water needs to be re-spread to avoid loss through dispersal, such losses should remain lower than losses for surface storage in the Colorado River area. Section 5.3.3 of the Groundwater Resources Report stated that groundwater in the project area moves at a velocity of approximately 1 to 2 feet per day (approximately 365 to 730 feet per year). Considering an average rate of 550 feet per year, it would take over 10 years for stored water migrate from the spreading basin to the periphery of the recovery wellfield; therefore, it is not anticipated that there will be losses due to migration of the water to the dry lakes. The stored water will be monitored, and may be extracted and delivered to the CRA or re-spread if necessary to retain the stored water in the area of the project wellfield.

G6-9 The extraction wells will be completed in both the upper and lower alluvial aquifer systems to ensure efficient operation of the wellfield. The amount of water pumped from the wellfield would be the same, regardless of the specific depth to which well are drilled.

Additionally, Section 5.5 of the Final EIR/EIS Volume I, under discussion of principal aquifer systems, states that the project wells will not be drilled in to the carbonate bedrock aquifer.

Regarding the statement that the project should "Take out what you put in," implementation of the Management Plan would also have the practical effect of combining the storage and transfer alternatives into one project. The Management Plan has been fully incorporated into the proposed project, which is also the environmentally preferred alternative, as discussed in Section 11 of the Final EIR/EIS Volume I. If, for example, it was determined that indigenous groundwater could not be transferred in compliance with requirements of Management Plan, the Cadiz Project would be a conjunctive-use storage only project. Conversely, should transfers of indigenous groundwater comply with all the requirements of the Management Plan, including the avoidance of adverse impacts to critical resources, the Cadiz Project would then be able to provide both conjunctive-use storage and transfer.

G6-10 The program operational scenarios identified in the Draft EIR/EIS have been deleted from the analysis and replaced with the Management Plan which ensures avoidance of impacts to critical resources regardless of the amount of indigenous groundwater withdrawn, if any. For further details of the Management Plan see Master Response "Groundwater Monitoring and Management Plan."

G6-11 The potential impacts to groundwater quality from the introduction of Colorado River water are discussed in Section 5.5.4 of the Final EIR/EIS. Measures that will be implemented to avoid these impacts are set forth in Section 7.2.1 of the Management Plan.

G6-12 The Cadiz Project will not impact Cadiz Dunes Wilderness Area or other sand dunes habitats for insect, plant and wildlife as the result of impacts to "stored water within and under desert sand dunes."

There is no site-specific information that suggests that wildlife is dependent on groundwater underlying Cadiz Dunes or other sand dunes in the vicinity of the project area. To the contrary, the Final EIR/EIS, Section 15 cites the following reference:

Shafer, R.A. 1964 Report on Investigations of Conditions which Determine the Potential for Development in the Desert Valleys of Eastern San Bernardino County California. Unpublished Report, Engineering Department, Southern California Edison Company, 172 pp. 12 plates.

This report provides information regarding the elevation of water levels underlying and adjacent to the Cadiz Dunes wilderness area. Based on the information contained in this report, the depth to groundwater underlying the Cadiz Dunes Wilderness Area is not near (within inches of) the surface. The depth to groundwater is approximately 100 feet below the surface of the Cadiz Sand Dunes.

G6-13 See Response to Comment F2-40.

G6-14 See Master Response "Alignment Alternatives" for a discussion of an alignment that does not cross Class L lands.

G6-15 The comment does not raise an issue under CEQA or NEPA. The project is not expected to appreciably affect Metropolitan's water rates and thus will not impact water demands.

G6-16 There is not a CDCA Plan Utility Corridor that connects the Iron Mountain Pumping Plant with the project spreading basins or wellfield, nor is one proposed. For this reason the project will require an amendment to the CDCA Plan for an exception to the utility corridor requirement regardless of the route selected. Existing utility corridors are shown on Figure 5.2-2 of the Final EIR/EIS Volume I.

G6-17 Mitigation Measure B-23 is specifically provided to minimize impacts to desert tortoise from construction of new access roads by requiring barrier fences, boulders, topographic impediments (grading potential access points such that vehicles would have difficulty gaining access), and signage. Because this mitigation measure reduces ability to access any new roads, the concern raised in the comment is addressed.

G6-18 The existing expansive landscape in the project area and the potential visual impacts associated with the Cadiz Project are described in detail in Section 5.15 of the Final EIR/EIS Volume I. Photographs of the existing landscape in the area are also provided in Section 5.15. The new features the Cadiz Project will introduce into the landscape are identified. It is acknowledged that these new features, especially the utility poles and scarring from construction and the maintenance road, will contrast with the existing views of vast expanse of desert land, and that this contrast will be most noticeable from near views. However, these features will be much less distinct from more distant views. The disturbance associated with the Cadiz Project will not be noticeable in the distance from the valley floor but will be more noticeable from higher elevations that may be used by visitors on BLM lands. These project elements, although they contrast with the existing landscape, will still be subordinate to the panoramic views of the desert. This contrast is within the BLM's Visual Resource Management contrast parameters established for the area.

G6-19 Comments noted. See Response to Comment G6-18. The project has no impact on the continued operation of the rail line.

G6-20 Comment noted. Section 5.14.4 and Section 5.17.4 of the Final EIR/EIS Volume I have been revised to clarify that the single-wire, wood pole-supported electric line along a segment of the ARZC track ends approximately three miles north of the Cadiz Dunes Wilderness Area; that the electric lines along the BNSF rail line cross the Cadiz project area on the north side of the spreading basins; and that there are also overhead electric lines providing service to the El Paso Natural Gas Company facility and to facilities located at Cadiz. Also see Response to Comment G6-18.

G6-21 NEPA requires an evaluation of reasonable alternatives, and a brief discussion of the reasons for eliminating alternatives that are not studied in detail. 40 CFR §1502.14. At the time it makes its decision, the NEPA lead agency must identify all the alternatives considered, and specify which alternative is considered to be environmentally preferable. 40 CFR §1505.2. Section 11 of the Final EIR/EIS discusses identification of the environmentally preferred alternative.

The "alternatives" suggested in the comment have been considered and eliminated from detailed study. The proposed alignments across the Danby Dry Lake are discussed at Section 3.6 of the Final EIR/EIS. The undergrounding of power lines was considered and eliminated from further study as technically infeasible. See also Master Response "Alignment Alternatives."

The references to a CDCA Plan utility corridor are generally not correct. A relatively short segment (approximately five miles) of a CDCA Plan utility corridor is located within the Cadiz Project area north of the Iron Mountain Pumping Plant. This utility corridor accommodates aboveground utility lines (two power lines and telephone lines) for pumping plants along the Colorado River Aqueduct, and bisects CDCA Plan Class L lands. The Arizona and California Railroad and the El Paso Natural Gas Company pipeline are not located within a CDCA Plan utility corridor. There is not a CDCA Plan utility corridor that connects the Iron Mountain Pumping Plant with the project spreading basins of wellfield, nor is one proposed. For this reason, any alignment (including ES-2 and ES-3 as referenced in the comment) will require an amendment to the CDCA Plan for an exception to the utility corridor requirement.

Although the preferred alternative is not within a CDCA Plan utility corridor, much of it is adjacent to existing utility or transportation facilities. Approximately one half to the preferred Eastern Alternative would follow an alignment within or adjacent to Cadiz-Rice Road, the Arizona California Railroad and the El Paso Natural Gas pipeline.

In response to the statement regarding "cultural and archaeological resources", the extent of these resources located within "existing rights of way" is not known. Because the facilities located in these "rights of way" were constructed prior to present-day requirements for the protection of cultural and archaeological resources, such information regarding these facilities is incomplete.

A 69kV aboveground power transmission system is proposed to provide power to the project wellfield. An underground power transmission cable was evaluated and determined to be fatally flawed on both technical and environmental basis. The environment concerns attributable to an underground power transmission cable are inefficient management and use of electrical power, increased environmental impacts during construction and increased environmental impacts during project operation and maintenance.

An underground power transmission cable would require approximately one additional megawatt of electrical power for wellfield operation. The additional electrical power would be required to compensate for inefficiencies of an underground power transmission cable and resulting loss (waste) of electrical power. The area of disturbance for an underground power cable would be approximately double that required for an aboveground power line. The engineering constraints of an underground power cable require that it be located in a right-of-way separate from the underground water conveyance pipeline. By contrast the aboveground power transmission line and below groundwater conveyance pipeline share one common right-of-way.

During project construction, installation of a below ground power transmission cable would require the removal of approximately 62,000 cubic yards of excess material that would be transported and disposed off-site. Importation of approximately 55,000 cubic yards of concrete would also be required. The removal and disposal 62,000 cubic yards of excess material would necessitate approximately 7,700 additional truck trips. The importation of 55,000 cubic yards of concrete would require 12,200 additional truck trips. These more than 20,000 additional truck trips would result in increased air and traffic impacts. By contrast, the above ground power transmission line does not require the disturbance, use, transportation or disposal of such materials.

During project operations the restoration of a line fault on an underground power cable would be problematic. Locating and repairing a fault would create new areas of disturbance.

By contrast, restoration of an aboveground line fault is substantially easier and would not require disturbance outside of the project right-of-way. In addition, to mitigate the engineering problems specific to transporting abnormally high voltages in an underground power cable of this length, control devices such as switched shunt reactors and associated switching stations are required. The addition of these reactors and the control systems required for their operation would significantly increase the operation and maintenance of the project wellfield and reduce its reliability during critical periods of operation, that is during dry-years when water to be supplied by the Cadiz Project will most needed.

A natural gas powered system was similarly considered and rejected.

Regarding the pre-treatment of Colorado River water prior to storage and pumping only from the "upper alluvial aquifer, see Responses to Comments G6-11 and G6-9.

G6-22 Comments noted. Development of the Groundwater Monitoring and Management Plan have addressed the need for further information as suggested by the comments.

G7 RESPONSES TO COMMENTS FROM THE SAN BERNARDINO VALLEY AUDUBON SOCIETY DATED MARCH 6, 2000

G7-1 Comments noted. See Responses to Comments G7-2 to G7-10, below.

G7-2 See Response to Comment R3-82.

G7-3 The Management Plan has been developed to address potential impacts on groundwater related resources, including springs. Sections 6.1 and 7.1 of the Management Plan describe the monitoring and management procedures to avoid adverse impacts to these resources. See Master Response "Groundwater Monitoring and Management Plan."

G7-4 See Response to Comments S4-2.

G7-5 Section 6 of the Final EIR/EIS Volume I provides a thorough discussion of the growth inducement impacts of the project. For further discussion, see Master Response "Growth Inducement."

G7-6 Section 7 of the Final EIR/EIS Volume I provides a thorough discussion of the cumulative impacts of the project. Specifically, Section 7.3.5 discusses the potential cumulative impacts to water resources.

G7-7 The correct name of the referenced plan is the West Mojave Plan. The Cadiz Project area is not located within designated areas of, nor will it have an impact on, the West Mojave Plan or the San Bernardino MSHCP. Furthermore, the project is not anticipated to have a significant cumulative effect on regional biological resources.

G7-8 In response to the differences in opinion referenced in this comment, BLM and Metropolitan developed the Groundwater Monitoring and Management Plan that is incorporated into the project. This Management Plan was developed in consultation with the NPS, USGS, and County of San Bernardino. The project will be operated in accordance with the Management Plan to avoid impacts to critical resources.

G7-9 Cadiz Valley Agricultural Development water use will be conducted in accordance with the Management Plan and, as such, the action criteria for all of the critical resources would apply to groundwater withdrawn for both the agricultural operation and the project. Section 7.3.5 of the Final EI/EIS Volume I contains a full discussion of the potential cumulative impacts of past, present, and reasonably foreseeable water uses in the project area, including Cadiz agricultural uses.

G7-10 See Master Response "Need for Supplement/Recirculation."

G8 RESPONSES TO COMMENTS FROM THE RED ROCK AUDUBON SOCIETY DATED MARCH 6, 2000

G8-1 Comments noted.

G8-2 See Response to Comment F2-2 and Master Response "Need for Supplement/Recirculation."

G8-3 Sections 6.1 and 7.1 of the Management Plan provide for the monitoring and management of the project to avoid adverse impacts to groundwater related resources, including springs. See Master Response "Groundwater Monitoring and Management Plan."

G9 RESPONSES TO COMMENTS FROM THE CALIFORNIA/NEVADA REGIONAL CONSERVATION DESERT COMMITTEE DATED MARCH 7, 2000.

G9-1 Comments noted. See responses to comments G9-2 to G9-18, below.

G9-2 Regarding "draw down of the aquifer," see Master Response "Groundwater Monitoring and Management Plan." Regarding recirculation of the EIR/EIS, see Master Response "Need for Supplement/Recirculation".

G9-3 See Response to Comment F2-2, and Master Response "Groundwater Monitoring and Management Plan."

G9-4 The monitoring and mitigation plan referenced as WR-1 in the Draft EIR/EIS has been developed and circulated for public comment in the Supplement to the Draft EIR/EIS. The Groundwater Monitoring and Management Plan is presented in the Final EIR/EIS, Volume IV.

G9-5 The "railroad right-of-way" is not an existing utility corridor under the CDCA as stated in the comment. See Master Response "Alignment Alternatives."

G9-6 Sections 6.1 and 7.1 of the Management Plan provide for the monitoring and management of the project to avoid adverse impacts to groundwater related resources, including springs in the Trilobite Wilderness Area. See Master Response "Groundwater Monitoring and Management Plan."

G9-7 See Response to Comment F2-2.

G9-8 Regarding potential impacts to Cadiz Sand Dunes, see Response to Comment G6-12. Regarding potential impacts to springs, see Response to Comment F2-40.

G9-9 Section 4 of the Management Plan discusses the mobilization of lakebed dust. Sections 6.4 and 7.4 provide monitoring and management measures to ensure that the project does not contribute to the mobilization of lakebed dust.

G9-10 Existing conditions related to light and glare in the project area are described in Section 5.14.1 of the Final EIR/EIS Volume I. Potential light and glare impacts of the project are described in Section 5.14.4. Mitigation Measure AS-3 has been added to the Final EIR/EIS to address the potential impacts.

G9-11 See Response to Comment F2-28.

G9-12 See Master Response "Water Quality."

G9-13 See Response to Comment G6-9.

G9-14 Comment noted. No further response is possible because the commentor does not identify any specific communities that are considered to be affected. See Response to Comment F2-4.

Regarding the potential for "large dust storms," see Response to Comment G9-9.

G9-15 Figures within the Final EIR/EIS have been revised to identify all wilderness areas located within approximately twenty miles of the project area.

G9-16 See Section 5.5.2 of the Final EIR/EIS Volume I and Response to Comment G10-11.

G9-17 Comments noted. No response is necessary.

G9-18 See Master Response "Need for Supplement/Recirculation."

G10 RESPONSES TO COMMENTS FROM THE CALIFORNIA NATIVE PLANT SOCIETY DATED MARCH 8, 2000.

G10-1 Comments noted. See Responses to Comments G10-2 to G10-19, below.

G10-2 Metropolitan supports water conservation efforts as described in Section 2.3.3 of the Final EIR/EIS Volume I. The effect of conservation efforts on the need for water storage and dry year supply programs is discussed in Section 2.4.4.

Metropolitan also participates in development of conservation measures through the California Urban Water Conservation Council (CUWCC). This organization has developed Best Management Practices (BMPs) to identify urban water conservation measures. Metropolitan supports Landscape Training and Education under BMP 5, Large Landscape Audits. Metropolitan funds, develops, and coordinates training and education programs for landscape workers and professionals. Metropolitan also collects and disseminates information about the effectiveness of landscape water conservation programs and strategies, participates in landscape research projects, and investigates and tests promising new technologies.

Metropolitan participated on the committee that developed the BMP 5 Handbook, which outlines implementation methods, and it continues to develop and test projects to meet the requirements of BMP 5 – Large Landscape Water Conservation Programs and Incentives.

Metropolitan and its member agencies have conducted a training course known as "Protector de Agua" for landscape maintenance technicians. In keeping with the original goal of providing technical information to Spanish-speaking participants, approximately 28 percent of the classes held during fiscal year 1998 – 1999 were taught in Spanish. This course is now certified through the Irrigation Association, which allows participants to earn up to 21 Continuing Education credits for attending. To date, more than 5,000 participants have completed the course.

In response to member agencies and participants, a new "plant class" was added to the training program. This class provides landscape technicians with information about low-water using plants suitable for use in Southern California. Participants receive a reference booklet, which includes color photos and maintenance information, as well as water use guidelines for various landscape species. To address residential outdoor water use, Metropolitan offers a Saturday morning workshop for home gardeners.

G10-3 See Master Response "Alignment Alternatives." Temporary impacts to habitats would occur during construction for each alignment alternative, however, Mitigation Measure B-1 provides for the re-establishment of native habitats.

G10-4 Please refer to Biological Resources mitigation measures described in Section 5.8.5 of the Final EIR/EIS Volume I. Mitigation Measure B-3 addresses post-construction weed control, and has been revised to specifically include control of tamarisk

G10-5

The Final EIR/EIS Volume I addresses fluctuations of water levels in Sections 5.5.1 and 5.5.4. However, the implementation of the Management Plan would govern all groundwater storage and extraction to ensure protection of critical resources and thereby address these concerns. Significant impacts to these plant communities will be prevented by avoiding significant fluctuations in groundwater levels and changes in groundwater quality as described in the Management Plan (Sections 6.3 and 7.3).

G10-6 Dust suppression during construction will primarily involve using soil binders. Mitigation Measure AQ-4 in the Draft EIR/EIS included the possibility of watering unpaved roads and areas as a method of dust suppression. After discussions with the California Department of Fish and Game and the Mojave Desert Air Quality Management District, watering has been removed from the mitigation measure to avoid attracting desert tortoises and to prevent the establishment of exotic plant species.

G10-7 In response to this comment, the Final EIR/EIS Volume I, Section 5.8, has been revised clarify that the acreage estimates for Mojave wash scrub and desert dunes and sand fields habitat Volume I are according to the cited reference of Sawyer and Keeler-Wolfe, 1995.

G10-8 See Response to Comment G10-7.

G10-9 Please refer to the Biological Resources Section 5.8 of the Final EIR/EIS Volume I. The existing resources and the impact acreage for the two plant communities referenced in the comment letter are described for each project alternative. Table 5.8.3 summarizes the impacts to existing resources for all the proposed alternatives. By implementing the mitigation measures in Section 5.8.5, impacts to Mojave wash scrub, stabilized and partially stabilized desert dunes and desert sand fields will be reduced below a level of significance.

G10-10 Please refer to the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Technical Report, Biological Resources, Report (Report No. 1164). General and focused botanical field surveys were conducted in 1999 on March 22-24, April 5-7, April 27-29, May 11-14, and May 25 and 26 to best observe bloom time for a variety of species. Appropriate measures were taken to conduct an efficient quantifiable analysis of plant communities on the project site. It should also be noted that most of the sensitive species are perennial. Thus, even during a dry year, these species would generally be identifiable.

G10-11 The CEQA Thresholds of Significance were adopted from the CEQA Guidelines, Appendix G. Determination of significance requires the exercise of judgment on the part of the public agency involved. 14 Cal. Code of Regulations §15064(b).

G10-12 Blowoff structures have been identified on the preliminary design plan and profile sheets for the proposed conveyance pipeline alignment alternatives as shown in the Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Project Feasibility and Facilities Report (Metropolitan Report No. 1162). These blowoff structures are located at wash crossings as the comment suggests.

G10-13 The Executive Summary section of the Final EIR/EIS has been revised to state, "4 to 6 inches of topsoil to be salvaged." Similar revisions have been made in Sections 4.2.3, 4.3.2, 4.4.3, and 4.5.1.of the Final EIR/EIS.

G10-14 Please refer to Biological Resources mitigation measures in Section 5.8.5 of the Final EIR/EIS. Mitigation Measure B-1 states that topsoil storage shall not exceed three months, reducing degradation of the cryptobiotic soils.

G10-15 Crushed shrubs and stockpiled topsoil will be spread following placement of the pipe and grading of the area to pre-construction contours. Mitigation Measure B-1 specifies that topsoil stockpiles will not exceed four feet in height.

G10-16 Stockpile locations will be identified within the 200-foot wide construction right-of-way. Plans and specifications would enumerate the stockpiling requirements identified in Mitigation Measure B-1.

G10-17 Mitigation Measure B-3 has been revised to include the scientific name for camel knapweed, "Centaurea ssp."

G10-18 The 1:1 mitigation ratio is for temporary and permanent impacts to habitat lands and is consistent with requirements of BLM, USFWS and CDFG.

G10-19 Regarding the need for a Supplement, see Master Response "Need for Supplement/Recirculation."

G11 RESPONSES TO COMMENTS FROM THE NATIONAL PARKS CONSERVATION ASSOCIATION AND THE WILDERNESS SOCIETY DATED MARCH 8, 2000

G11-1 Comments noted. No response is necessary.

G11-2 Comment noted. The comment is too general to permit a response. BLM believes that the Final EIR/EIS serves the purposes and complies with the requirements of NEPA.

G11-3 Comment noted. The comment is too general to permit a response. Regarding a need to revise and re-circulate the document, see Master Response "Need for a Supplement/Recirculation."

G11-4 See Master Response "Groundwater Monitoring and Management Plan" and Response to Comment F2-2.

G11-5 The Management Plan has been developed by Metropolitan, Cadiz, the County of San Bernardino, NPS, USGS, and BLM to avoid adverse impacts to groundwater related resources, including springs and seeps. The Management Plan specifies a monitoring network and groundwater level action criteria so that adverse impacts to critical resources do not occur as a result of project operations (see Management Plan Sections 6.1 and 7.1, Final EIR/EIS, Volume IV).

G11-6 See Response to Comment G6-12 regarding potential impacts to the Cadiz Dunes Wilderness. See Response to Comment G6-20 regarding aesthetic impacts.

G11-7 See Response to Comment G9-6.

G11-8 Section 1.3.2 of the Final EIR/EIS Volume I properly reflects BLM's role in the project. The project includes the need for an amendment for an exception to the utility corridor requirement of the CDCA Plan. The impacts to aesthetic, biological, and land use resources are identified and considered in the Final EIR/EIS, Sections 5.14, 5.8, and 5.2, respectively.

G11-9 See Master Response "Alignment Alternatives."

G11-10 The project will not cause any adverse impacts to groundwater levels in the Mojave National Preserve. The Management Plan, Sections 6.1 and 7.1, provides a monitoring and management program to identify and avoid adverse impacts to groundwater resources. The comment incorrectly states that the Draft EIR/EIS indicates that groundwater drawdown could occur as much as 25 miles away from the pumping site. See Master Response "Groundwater Monitoring and Management Plan."

G11-11 The comment incorrectly states that the Draft EIR/EIS indicates that Colorado River water is two orders of magnitude more polluted than safe levels for human consumption. Water quality impacts from the introduction of Colorado River water into the basin are discussed in Section 5.5.4 of the Final EIR/EIS Volume I.

G11-12 Potential subsidence impacts from project operations are discussed in Section 5.5.4 of the Final EIR/EIS Volume I. Section 7.2.3 of the Management Plan provides the monitoring and management procedures that apply to avoid adverse impacts of subsidence. The Management Plan adopts a 0.5 foot subsidence as the action criteria; and includes cessation of groundwater extraction as a potential corrective measure. Also see Responses to Comments F2-28 and F2-29.

G11-13 The Final EIR/EIS has been revised to remove references to projected drops in groundwater levels. The development and incorporation of the Management Plan in the project has provided a monitoring and management procedure to avoid adverse impacts to groundwater

resources. The Closure Plan, required under Section 8 of the Management Plan, restricts the drop in groundwater levels beneath the project wellfield to an average of 100 feet, or such other level as will avoid adverse impacts, at the end of the project term.

G11-14 See Response to Comment F2-36.

G11-15 See Response to Comment F2-38.

G11-16 See Response to Comment G9-9.

G11-17 BLM and Metropolitan have developed a detailed Groundwater Monitoring and Management Plan that is incorporated into the project and provides the level of meaningful, enforceable regulatory controls suggested in the comment. The Management Plan was circulated for public review and comment in the Supplement to the Draft EIR/EIS, and is set forth in the Final EIR/EIS, Volume IV. For further information, see Master Response "Groundwater Monitoring and Management Plan."

G11-18 See Master Response "Formulation and Screening of Potential Projects."

G11-19 See Response to Comment F2-16.

G11-20 See Response to Comment F2-17.

G11-21 See Master Response "Alignment Alternatives." All conveyance pipelines will be constructed underground, which will minimize aesthetic impacts to the region. The only utility that will affect the visual quality of the region will be the overhead power line that will follow the pipeline alignment.

G11-22 The extraction of groundwater for the project is limited by the provisions of the Management Plan (Final EIR/EIS, Volume IV) to avoid adverse impacts to groundwater resources in the project area. The No Action alternative would most probably result in overdraft of groundwater basins within Metropolitan's service area through pumping by local agencies to satisfy water demands.

G11-23 California law recognizes that groundwater may be appropriated for non-overlying uses, including exportation for use outside the groundwater basin. The transfer of any indigenous groundwater as part of the project will not compete with reasonable, beneficial overlying uses of water from the basin, including such uses on overlying federal lands.

G11-24 The Management Plan has been developed by Metropolitan, Cadiz, the County of San Bernardino, NPS, USGS, and BLM to avoid adverse impacts to groundwater related resources, including springs and seeps. The Management Plan specifies a monitoring network and groundwater level action criteria so that adverse impacts to critical resources do not occur as a result of project operations (see Management Plan).

G11-25 The cumulative impacts analysis (Final EIR/EIS Volume I, Section 7) has been expanded to discuss other projects, including the Cadiz agricultural development and salt mining operations on Bristol and Cadiz dry lakes. The use of groundwater for Cadiz agricultural operations will be conducted in accordance with the Management Plan. The Rail Cycle project is not reasonably foreseeable for the reasons stated in Section 7.1.

G11-26 The Final EIR/EIS serves the purposes and complies with the requirements of NEPA and CEQA.

G12 RESPONSES TO COMMENTS FROM PEOPLE AGAINST RADIOACTIVE DUMPING DATED MARCH 8, 2000

G12-1 In water quality analyses for the project, none of the radiological constituents listed in the California Department of Health Services standards set forth in Title 22 of the California Code of Regulations have been detected in Colorado River water at concentrations that exceed federal and/or state maximum contaminant levels for drinking water. Likewise, with the exception of perchlorate, no contaminants associated with industrial or medical waste have been detected in Colorado River water. Perchlorate has not been detected in Colorado River water at concentrations above the current provisional maximum contaminant level for this constituent (Final EIR/EIS, Section 5.5.4) .

It should be noted that the natural concentrations of radiological elements detected in groundwater collected from the production well in Fenner Gap during the pilot test program were approximately the same or slightly higher than concentrations detected in the Colorado River water.

Regardless of the historical database, Colorado River water diverted to the project area for spreading and storage will be analyzed on an annual basis for all of the Title 22 radiological and other compounds as specified in Section 6.2.2 of the Management Plan (Final EIR/EIS, Volume IV).

G12-2 Concentrations of radiological compounds measured in Colorado River water do not exceed the concentrations measured in indigenous groundwater in the project area. Therefore, the mixing of the two water sources will not result in higher concentrations of these compounds and will have no impact on existing mineral deposits in the area, including the brine resources on Bristol and Cadiz dry lakes.

G13 RESPONSES TO COMMENTS FROM PEOPLE AGAINST RADIOACTIVE DUMPING DATED MARCH 8, 2000.

G13-1 The comment relating to use of public funds does not raise an issue under CEQA or NEPA, and therefore, no response is required. The Final EIR/EIS serves the purposes and complies with the requirements of CEQA and NEPA. See Responses to Comments G13-2 to G13-15, below.

G13-2 The comments relating to the use of public funds do not raise an issue under CEQA or NEPA, and therefore, no response is required. The purpose and need for the project are discussed in Section 2 of the Final EIR/EIS Volume I. The storage capacity available through construction of the Eastside (Diamond Valley) reservoir is included in this analysis (Table 2-3).

G13-3 The comment relating to the use of public funds does not raise an issue under CEQA or NEPA, and therefore, no response is required. The reasons for the siting of the project wellfield are discussed in Section 3.6 of the Final EIR/EIS Volume I.

G13-4 See Response to Comment G13-3.

G13-5 The comment relating to the use of public funds does not raise an issue under CEQA or NEPA, and therefore, no response is required. There is no groundwater continuity or flow between the project area and the Colorado River for the reasons discussed in Section 5.5.4 of the Final EIR/EIS. Maps which show siphons in the Colorado River Aqueduct system refer to a pipeline segment, termed a siphon because it is a pressurized conduit, not a facility that extracts water from the groundwater basin.

G13-6 The comment relating to the use of public funds does not raise an issue under CEQA or NEPA, and therefore, no response is required. The purpose and need for the project are discussed in Section 2 of the Final EIR/EIS Volume I. The use of water conservation measures to help reduce demand in Metropolitan's service area is included in this analysis (Section 2.4.4). The Diamond Valley Lake reservoir was built to meet water supply and reliability needs, and not for recreational purposes.

G13-7 The BLM is authorized and required to manage the lands under its jurisdiction in the California Desert Conservation Area for multiple use and sustained yield. 43 U.S.C. §1781. With regard to the use of indigenous groundwater in the project, California law recognizes that groundwater may be appropriated for non-overlying uses, including exportation for use outside the groundwater basin. The screening process that identified potential project sites along the Colorado River Aqueduct is discussed in Sections 3.4 and 3.5 of the Final EIR/EIS.

G13-8 The comment relating to the use of public funds does not raise an issue under CEQA or NEPA, and therefore, no response is required. There is no groundwater continuity or flow between the project area and Ward Valley for the reasons discussed in Section 5.5.4 of the Final EIR/EIS.

G13-9 California law recognizes that groundwater may be appropriated for non-overlying uses, including exportation for use outside the groundwater basin. The comment relating to the use of state funds is incorrect, as state funds are not involved in the project. Furthermore, the comments relating to such funds and political contributions do not raise an issue under CEQA and NEPA, and therefore, no response is required.

G13-10 Section 5.5.4 of the Final EIR/EIS discusses the potential impacts of the project on water resources, including springs and movement of saline water from below the Bristol and Cadiz Dry Lakes. BLM and Metropolitan have developed the Management Plan that is incorporated in the Final EIR/EIS (Volume IV) to avoid adverse impacts to critical resources such as springs and groundwater quality. The USGS, as cooperating federal agency, assisted in preparation of the Management Plan.

Regarding impacts to other groundwater basins, Figure 5.5-2 in the Final EIR/EIS shows the watersheds in the Eastern Mojave Desert. The subsurface aquifers follow these same boundaries. The Ward Valley and Piute Valley aquifer systems are separate from the Fenner Valley aquifer system. The Ward Valley aquifer system flows towards Danby Dry Lake, while the Fenner Valley aquifer system generally flows towards Bristol and Cadiz dry lakes. Of all the regional watersheds shown in the Final EIR/EIS, Figure 5.5-2 only the Piute aquifer system flows towards the City of Needles. This aquifer will not be affected by the Cadiz Project because it is hydrologically distinct from the Fenner Valley aquifer system, which flows towards Bristol and Cadiz dry lakes. The Cadiz Project would affect neither the Piute nor the Ward Valley aquifer systems.

G13-11 The project does not involve the diversion of more Colorado River water than Metropolitan is entitled to receive. Colorado River water will be held in storage for use by Metropolitan to meet dry year demand, and not to sell for profit. The operating scenarios presented in the Draft EIR/EIS have been deleted, and the project will be operated in accordance with the Management Plan (Final EIR/EIS, Volume IV) to avoid adverse impacts to critical resources. The storage capacity provided by the project is in addition to the storage capacity provided by Diamond Valley Lake.

G13-12 The project does not involve the diversion of more Colorado River water than Metropolitan is entitled to receive, and therefore, will not have any impact on the Colorado River or Gulf of California.

G13-13 The water rights for the Colorado River are allocated in accordance with a series of federal and state statutes, United States Supreme Court decisions, and an international treaty with Mexico. Collectively known as the "Law of the River," these laws allocate a total of 4.4 million acre-feet of water annually, together with one-half of any surplus water, to California. A description of Metropolitan's share of the California allocation is set forth in Section 2.3.5 of the Final EIR/EIS Volume I. The project does not involve an increase in Metropolitan's share of Colorado River water. Therefore, the project has no effect on the amount of Colorado River water that is delivered to Mexico in accordance with the Law of the River.

Regarding impacts on the "Needles and Havasu Land [sic] water system," Figure 5.5-2 in the Final EIR/EIS shows the watersheds in the Eastern Mojave Desert. The subsurface aquifer system follow these same boundaries. The Piute (for Needles) and Chemehuevi Valley (for Lake Havasu) aquifer systems are separate from the Fenner Valley aquifer system (for the Cadiz Project). Both the Piute and Chemehuevi Valley aquifer systems flow towards the Colorado River and, as a result, are hydrologically distinct from the Fenner Valley aquifer system, which flows towards Bristol and Cadiz dry lakes. The Cadiz Project will affect neither the Piute nor the Chemehuevi aquifer systems.

G13-14 Regarding the No Project alternative, Section 4.8 of the Final EIR/EIS Volume I describes this alternative and its impacts are evaluated throughout the document in accordance with the requirements of NEPA and CEQA. Regarding water quality, BLM and Metropolitan have developed the Management Plan that is incorporated in the Final EIR/EIS (Volume IV) to avoid adverse impacts to critical resources, including water quality. Section 6.2 of the Management Plan describes the groundwater testing that will be performed to ensure that water delivered under the project meets applicable water quality standards.

G13-15 The comment does not raise an issue under CEQA or NEPA. A response is not necessary. Metropolitan will not execute an agreement with Cadiz Inc. unless the project is approved after certification that the Final EIR/EIS has been completed in compliance with CEQA.

G14 RESPONSES TO COMMENTS FROM PEOPLE AGAINST RADIOACTIVE DUMPING DATED MARCH 8, 2000.

G14-1 Comments noted. See responses to comments G12-1 and G12-2.

G14-2 EPA Region IX has reviewed and commented on the Draft EIR/EIS and the Supplement to the Draft EIR/EIS. See comment letters F1 and F3. Although the project is not subject to the federal Underground Injection Control regulations because there are no injection wells, BLM and Metropolitan have developed the Management Plan that is incorporated in the Final

EIR/EIS (Volume IV) to avoid adverse impacts to critical resources, including water quality. Section 6.2 of the Management Plan describes the groundwater testing that will be performed to ensure that water delivered under the project meets applicable water quality standards.

G14-3 Comments noted. No response is necessary.

G15 RESPONSES TO COMMENTS FROM DESERT WATCH DATED JANUARY 18, 2000.

G15-1 Comments noted.

G15-2 Comments noted. Metropolitan is the lead agency for the project under CEQA, and BLM is the lead agency under NEPA.

G15-3 Metropolitan and BLM believe that the Final EIR/EIS serves the purposes and complies with the requirements of CEQA and NEPA.

G15-4 The Fish and Wildlife Coordination Act requires federal agencies to coordinate with the U.S. Fish and Wildlife Service (USFWS) "whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened...with a view to the conservation of wildlife resources..." (16 USC 662(a)). Implementation of this Act has focused on water-resource development projects that impound or divert surface waters for purposes of navigation, water supply or flood control.
The Cadiz Project does not propose to modify any surface water body. Field surveys have been conducted by consulting biologists, and many of the findings and mitigation measures have been discussed at length with the USFWS and the California Department of Fish and Game.

Regarding scientific evidence and evaluation of impacts, please refer to Response to Comments G15-27 through G15-32 for specific responses to concerns raised in this comment letter.

G15-5 The Final EIR/EIS provides a full and accurate description of all project alternatives and their respective potential adverse impacts in Sections 4 and 5.

G15-6 Comments noted. See Response to Comment G15-4.

G15-7 See Master Response "Need for Supplement/Recirculation."

G15-8 Comments noted. No response is necessary.

G15-9 See Master Response "Alignment Alternatives."

G15-10 See Master Response "Alignment Alternatives."

G15-11 Section 5.8.1 of the Final EIR/EIS Volume I discusses the two man-made habitats that have been created in the project area: agriculture and open-water. Section 5.8.4 discusses the potential impacts of the project, including growth of non-native plant and animal species. The potentially beneficial impact of an available water source for bats and birds is also discussed. Mitigation measures B-3, B-19, B-21, B-22, and B-24 will be implemented to mitigate potential adverse impacts associated with man-made features and non-native plant and animal species.

G15-12 Table 5.8-1 of the Final EIR/EIS Volume I lists all the special interest plant species that have the potential to occur in the project area. The discussion of potential impacts in Section 5.8.4 includes the potential direct and indirect impacts on special interest plant species, and identifies mitigation measures that will be implemented to mitigate the impacts.

Special status species include those listed as threatened or endangered as well as those whose status is less critical. The Biological Resources Technical Report discloses the probability of the occurrence of these species along the project alignment based upon their known habitat requirements. Tables 1-2 and 1-3 (pages 13 – 20) explain the habitat occurrence for both special status plants and animals along the project route.

G15-13 The Southern Transmission Line is used only in connection with the Western and Combination project alternatives. The survey of this transmission line route is described on pp. 21-22 of the Cadiz Groundwater Storage and Dry Year Supply Program Environmental Planning Technical Report—Biological Resources (Report No. 1164). The potential occurrence of special interest wildlife species for the Western and Combination alternatives is shown on Table 5.8-2. The potential impacts to wildlife species for these alternatives is discussed in Section 5.8.4 of the Final EIR/EIS Volume I, along with mitigation measures that will be implemented to mitigate the potential impacts.

G15-14 As noted on page 20 of Appendix B to the Cadiz Groundwater Storage and Dry Year Supply Program Environmental Planning Technical Report—Biological Resources (Report No. 1164), the potential impacts to Mojave fringe-toed lizard were based on field surveys only, and not on the maps which were found to be inaccurate during field survey work.

G15-15 See Response to Comments G15-12 and G15-13.

G15-16 The potential impacts of the project on desert tortoise are discussed in Section 5.5.4 of the Final EIR/EIS Volume I. Specific mitigation measures (B-8 through B-31, and B-33), developed in cooperation with CDFG and USFWS, will be implemented mitigate the potential impacts.

G15-17 The proposed mitigation measures have been developed in coordination with USFWS and CDFG.

G15-18 Mitigation Measure B-18 requires that vehicles be inspected for presence of desert tortoise by workers prior to moving the vehicle. Signs will be posted to remind workers of this requirement. Mitigation Measure B-9 also provides an education program for all workers to provide training on desert tortoise requirements. As noted in the Final EIR/EIS, upon completion of federal and state endangered species permitting, the mitigation measures may be refined or additional measures required.

G15-19 Mitigation Measure B-28 applies to operations and maintenance personnel after construction is completed. Because a highly-trained biologist cannot be present with field personnel at all times, such field personnel will be trained as specified in mitigation measure B-27 to handle tortoises in an appropriate manner when it cannot be avoided.

G15-20 See Mitigation Measure AQ-4. During construction, soil binders other than water will be used on unpaved roads and parking areas.

G15-21 Mitigation Measure B-22 was developed in discussion with USFWS and CDFG. This measure will be implemented in the manner that complies with the requirements of USFWS and CDFG.

G15-22 Landscaping of project facilities is not proposed. New buildings will be constructed at the existing Iron Mountain Pumping Plant on the Colorado River Aqueduct where buildings currently exist. The proposed wellfield and spreading basins will be constructed in the vicinity of existing agricultural operations and buildings. Power poles will be constructed with a design to minimize raven nesting (Mitigation Measure B-24). As a result, opportunity for ravens to become more numerous or to extend their range further into desert tortoise habitat is minimized.

G15-23 For the reasons stated in Response to Comment G15-22, it is not anticipated that the Cadiz Project will contribute to predator nesting.

G15-24 Mitigation Measure B-25 was developed in discussion with USFWS and CDFG. This measure will be implemented in the manner that complies with the requirements of USFWS and CDFG. Additionally, any relocation of tortoises or eggs recovered from excavated burrows will be conducted in accordance with the "Guidelines for Handling Desert Tortoises During Construction Projects" as specified in Mitigation Measure B-13.

G15-25 Please refer to Mitigation Measure B-13.

G15-26 Comments noted. See Responses to Comments G15-27 to G15-32, below.

G15-27 The existence of cryptogamic soils in Mojave wash scrub habitat is noted as present for each alternative (Final EIR/EIS Volume I, Section 5.8.1) The impacts to this habitat are discussed in Section 5.8.4, and Mitigation Measures B-1 through B-4 will be implemented to mitigate these impacts.

G15-28 The potential impacts to water resources are discussed in Section 5.5.4 of the Final EIR/EIS Volume I. In addition, the project impacts to Mojave wash scrub habitat are discussed in Section 5.8.4. The Management Plan (Final EIR/EIS, Volume IV) provides monitoring and mitigation measures that will be implemented to avoid impacts to groundwater resources. Sections 5.8.4 and 5.8.5 discuss mitigation measures that will be implemented to mitigate impacts on Mojave wash scrub.

G15-29 The project impacts to habitats and species is discussed in Section 5.8.4 of the Final EIR/EIS Volume I, and mitigation measures that will be implemented to mitigate impacts on habitat and species are set forth in Section 5.8.5.

G15-30 Compensation for permanent and temporary impacted areas will be in the form of offsite habitat acquisition. Mitigation Measure B-33 in Section 5.8.5 of the Final EIR/EIS Volume I indicates a 1:1 mitigation ratio for both temporary and permanent impacts for either alternative. See Response to Comment G15-14.

G15-31 See Response to Comment G6-18.

G15-32 Section 8.3 of the Draft EIR/EIS completely states, "With the implementation of the extensive mitigation measures that are proposed, the impacts of the build alternatives on sensitive plant communities are not significant." Such mitigation measures include

acquisition and preservation of offsite habitat for both permanent and temporary impacts at a ratio of 1:1 (Mitigation Measures B-26 and B-33).

G15-33 Comments noted. See Responses to Comments G15-34 to G15-36, below.

G15-34 Analysis of the potential cumulative impacts associated with aesthetics is provided in Section 7.5.14 of the Final EIR/EIS Volume I. As discussed in that Section, the cumulative impacts of the Cadiz Project and the Hayfield Project construction activities when considered together would result in a temporary cumulative adverse impact on aesthetics. However, the area where the Cadiz Project water conveyance and power distribution facilities would be developed would be reestablished, although it would take some years for the vegetation to mature because of the limited amount of local rainfall. The Hayfield Project is adjacent to the Colorado River Aqueduct and the Eagle Mountain Mine and, therefore, the new wells, spreading areas and ancillary facilities would not adversely affect the long-term appearance of that area. For these reasons, jointly the Cadiz and Hayfield projects were determined not to result in a long term significant adverse cumulative aesthetic impact.

G15-35 The reestablishment of temporarily impacted habitats resulting from the Cadiz Project is discussed in the Final EIR/EIS Volume I under Mitigation Measures B-1, B-2, B-3, and B-4, Section 5.8.5. Vegetation in temporarily impacted areas would be crushed in place, and the removed plant material, along with the top 4 to 6 inches of topsoil, would be stockpiled (for a period not to exceed 3 months). These stockpiled materials would then be spread over the re-contoured surfaces of previously (temporarily) impacted areas following construction. Furthermore, all temporarily impacted habitats would be mitigated at 1:1 ratio (as if they were permanent impacts) through offsite habitat preservation (Mitigation Measures B-26 and B-33). Permanent impacts will also be mitigated through offsite habitat preservation. As a result of these restoration and preservation measures, there will not be cumulative significant impacts to biological resources as a result of the Cadiz and Hayfield projects.

G15-36 Analysis of the potential cumulative impacts associated with wilderness/recreation is provided in Section 7.5.17 of the Final EIR/EIS Volume I. The Hayfield Project would not result in the loss of any wilderness resources. The Cadiz Project will not directly impact any wilderness or recreational resources. Visitors to wilderness areas in the vicinity of the Cadiz Project would have temporary off site views of the construction of the water conveyance and power distribution facilities and some construction activity may be audible in areas closer to active construction zones. These impacts would not be cumulatively significant because no wilderness or recreational areas will be lost or directly impacted and construction noise and construction view impacts will be limited to the construction period only. Refer also to Response to Comment G15-34.

G15-37 Analysis of the potential impacts of the Cadiz Project related to wilderness recreation is provided in Section 5.17 (Wilderness/Recreation) in the Final EIR/EIS Volume I. Aesthetic impacts are addressed in Section 5.14 (Aesthetics). Mitigation Measure B-4 in Section 5.8.5 (Biological Resources) will be implemented to discourage unauthorized vehicle access into the desert from project maintenance roads or any other new access created by the Cadiz Project. These methods will also discourage access into wilderness areas. Cumulative impacts of the Cadiz Project are discussed in Section 7 (Cumulative Impacts) in the Final EIR/EIS Volume I. The Final EIR/EIS acknowledges that in some cases impacts could occur. However, such impacts either do not exceed the thresholds of significance or can be mitigated below a level of significance. As a result, such effects are considered insignificant.

G15-38 The discussion of potential construction related impacts to wilderness areas analyzed in Sections 5.14 and 5.17 of the Final EIR/EIS Volume I has been revised to specifically mention staging activities. However, noise, excavation, vegetation removal and other associated construction activities were previously addressed in the Draft EIR/EIS and there will be no additional impacts from staging activities than those discussed for construction. Construction related impacts, including any associated with staging areas would be temporary and of relatively short duration.

G15-39 The comment incorrectly interprets Section 103(d) of the California Desert Protection Act. This provision expressly states the intent of Congress that the designation of wilderness areas under the Act does not lead to creation of buffer zones around such areas. The section is not limited to existing rights for use of adjacent lands.

The comment also incorrectly interprets Section 406 of the Act (incorrectly referred to as section 604 in the comment). This section, codified at 16 U.S.C. section 410aaa-26, preserves Metropolitan's rights-of-way and operations activities within the boundaries of Joshua Tree National Park, but outside the Joshua Tree Wilderness. This section does not pertain to the Old Woman Mountains Wilderness or the Cadiz Dunes Wilderness.

G15-40 The Final EIR/EIS recognizes that the re-establishment of habitats will occur over a period of time (Volume I Section 5.8.4). As a result, compensation for habitat impacts is two fold: 1) provide for natural re-establishment of habitats through topsoil salvage and re-spreading and minimized vegetation removal (vegetation would be crushed in place wherever possible to promote crown sprouting), and 2) off-site preservation of habitat lands for both temporary and permanent habitat losses. Containerized planting and supplementary watering is avoided to reduce potential for weed establishment.

G15-41 Mitigation Measures B-4 and B-23 require access barriers to be installed to discourage unauthorized entry onto the proposed maintenance road. Such barriers could consist of fences, boulders and topographic impediments to obstruct unauthorized vehicle entry. Such barriers will be routinely inspected in the course of project operations.

G15-42 The construction staging area shown in Figure 4-28 of the Final EIR/EIS Volume I is located between Cadiz-Rice Road and the AZRC railroad rail line. The road and rail line are used daily and field surveys did not locate sensitive biological, cultural or other resources at this location.

G15-43 Mitigation Measures B-11 and B-12 require all construction vehicles to remain within the construction rights-of-way, unless permits explicitly allow otherwise. Mitigation Measure B-21 requires all trash and food items to be promptly contained within closed, raven and wildlife-proof containers with regular removal from the site. The Final EIR/EIS Volume I, Section 5.11.4 discusses construction noise impacts to wilderness areas. Mitigation Measure N-1 requires feasible muffling and noise control devices to be installed on construction vehicles.

G15-44 Biological field surveys conducted for the project alternatives identified raptor foraging habitat in the project vicinity, but did not identify breeding roosts along any of the project alternatives. Final EIR/EIS Volume I, Section 5.8.4.

G15-45 Mitigation Measure B-7 has been modified to specify burrow removal procedures to avoid reoccupation of burrows upon clearance.

G15-46 Public agencies at the local regional, state and federal levels routinely propose and implement projects in the course of meeting the responsibilities vested in them by the public. Metropolitan, as a public agency, is the CEQA lead agency for projects it proposes and is responsible to adopt and implement a Mitigation Monitoring Plan for projects it undertakes.

G15-47 Should a video be utilized for purposes of training construction personnel, Metropolitan would ensure that it addresses the topic areas specified in Mitigation Measure B-9 and meets any other training requirements of CDFG, USFWS, and BLM.

G15-48 Construction activities will not occur in critical habitat. Furthermore, as discussed in Section 5.11.4 of the Final EIR/EIS Volume I, any blasting for the project will be over a limited period (only 6 to 8 days) and may only be audible in the Cadiz Dunes and Old Woman Mountain wilderness areas. The potential impacts are deemed to be less than significant because of the short time involved, the limited area in which the impacts would occur, and the absence of nesting or lambing areas near the construction area. See Final EIR/EIS Volume I, Section 5.8.4.

G15-49 Comments noted. Mitigation Measure B-12 specifies that construction employees must use existing or proposed roads unless absolutely required by the project and as explicitly stated in the project permits. The right-of-way permit granted by BLM will need to authorize such travel for it to occur.

G16 RESPONSES TO COMMENTS FROM THE ENVIRONMENTAL DEFENSE FUND DATED MARCH 8, 2000

G16-1 Comment noted. The comment is too general to permit a response.

G16-2 The "alternatives" referred to in the comment are operating scenarios that were considered in the Draft EIR/EIS. These scenarios have been removed from the Final EIR/EIS. The project will be operated in accordance with the Management Plan that has been developed by BLM and Metropolitan, together with NPS and USGS as cooperating federal agencies, and the County of San Bernardino. The Management Plan provides monitoring and management criteria for avoiding adverse impacts to critical resources as a result of project operations.

G16-3 See Master Response "Groundwater Monitoring and Management Plan." Also, the Final EIR/EIS Volume I, Section 5.5.4, provides a discussion of potential impacts to water quality and groundwater related resources. The Management Plan has been developed, in conjunction and cooperation with the NPS and USGS, to provide monitoring and management criteria for avoiding adverse impacts to critical resources.

G16-4 See Section 7.2.6 of the Management Plan for the monitoring and management criteria that will be implemented to avoid impacts related to movement of saline water from Bristol Dry Lake. A discussion of this potential impact is set forth in Section 5.5.4 of the Final EIR/EIS Volume I.

G16-5 The analysis of potential impacts to water resources presented in Section 5.5.4 of the Final EIR/EIS Volume I is not premised on an estimate of a natural groundwater recharge rate of "30,000 acre-feet per year" or any other amount. Instead, all Cadiz Project operations, including extraction of groundwater, will be governed by and subject to the provisions of the

Management Plan. Regarding the comment "the drying out of the upper layer sediments at Cadiz Dry Lake (or even Bristol Dry Lake) and the creation of dust problems" see Master Response "Air Quality." Regarding the comment "potential for land subsidence" see Response to Comment F2-28. Regarding the reference to "the analysis by the United States Geological Survey" see Master Response "Groundwater Monitoring and Management Plan."

G16-6 See Master Responses "Groundwater Monitoring and Management Plan" and "Need for Supplement/Recirculation."

G17 RESPONSES TO COMMENTS FROM DESERT SURVIVORS DATED FEBRUARY 12, 2000

G17-1 Comments noted. See Responses to Comments G17-2 through G17-11, below.

G17-2 See Master Response "Groundwater Monitoring and Management Plan."

G17-3 See Master Response "Groundwater Monitoring and Management Plan."

G17-4 See Management Plan (Final EIR/EIS, Volume IV), Section 6.1, for a description of the monitoring measures applicable to springs located in wilderness areas.

G17-5 See Master Response "Groundwater Monitoring and Management Plan." The operating scenarios that were considered in the Draft EIR/EIS have been removed from the Final EIR/EIS.

G17-6 See Response to Comment G6-8.

G17-7 See Response to Comment R3-52.

G17-8 The analysis of potential impacts in the Final EIR/EIS is not premised on an estimate of the groundwater recharge or assumed amount of groundwater withdrawal. Final EIR/EIS Volume I, Section 5.5.4. All project operations will be governed by the provisions of the Management Plan to avoid adverse impacts to critical resources.

G17-9 See Response to Comment F2-4.

G17-10 See Master Response "Groundwater Monitoring and Management Plan."

G17-11 See Response to Comment F2-4. The Supplement to the Draft EIR/EIS, including the Management Plan (Section 3.0) was published and circulated for public review and comment.

G17-12 Comment noted. No response is required.

G17-13 Comments noted. No response is required.

G17-14 Comments noted. No response is required.

G17-15 Comments noted. No response is required.

P1 RESPONSES TO COMMENTS FROM A FRIEND OF THE DESERT DATED DECEMBER 28, 1999

P1-1 Comments noted. See responses to comments P1-2 to P1-12, below.

P1-2 See Responses to Comment R3-52. The No Project alternative would not preclude the expansion of existing Cadiz agricultural operations to the extent permitted by the County, but would not meet the purpose and need of the project as described in Section 2 of the Final EIR/EIS Volume I.

P1-3 The analysis of potential impacts in the Final EIR/EIS is not premised on an estimate of the groundwater recharge or assumed amount of groundwater withdrawal. Final EIR/EIS Volume I, Section 5.5.4. All project operations will be governed by the provisions of the Management Plan to avoid adverse impacts to critical resources. See Master Response "Groundwater Monitoring and Management Plan.

P1-4 See Master Response "Air Quality."

P1-5 See Master Response "Water Quality."

In the Final EIR/EIS Volume I, Section 5.5.4, water quality impacts from the effects of mixing Colorado River water with indigenous groundwater underlying the Cadiz Project area are discussed. With regard to increased salinity due to storage of Colorado River water, much of the salinity will be removed when the stored water is extracted. The remaining increase in TDS concentrations will be small and will not affect use of the groundwater for other beneficial uses.

Groundwater quality in California is protected pursuant to the California Porter-Cologne Water Quality Control Act. Surface water quality is protected pursuant to the federal Clean Water Act as well as the Porter-Cologne Act. The U.S. Environmental Protection Agency has delegated implementation of water quality provisions of the Clean Water Act to the State of California. In the Cadiz Project area, water quality statutes are administered by the State Water Resources Control Board (State Board) and the California Regional Water Quality Control Board, Colorado River Basin Region (Colorado River Regional Board). Section 7.2.1 of the Management Plan (Final EIR/EIS, Volume IV) requires that Colorado River water be monitored to ensure compliance with standards established by the Colorado River Regional Board. Corrective measures, including the curtailment of delivery of Colorado River water to the spreading basins, would be implemented in the event that the quality of the water to be delivered to the spreading basins does not meet the applicable water quality requirements.

P1-6 The potential for impacts to wells owned by neighboring landowners due to project operations is identified in Section 5.5.4 of the Final EIR/EIS. Section 7.2.2 of the Management Plan (Final EIR/EIS, Volume IV) requires that action be taken to correct any complaint from a neighboring landowner that is caused by the project. The project would not affect or alter the rights of any landowner to continue diverting and using water from surface streams or groundwater basins, including the rights reserved to federal lands.

P1-7 The Final EIR/EIS Volume I contains a discussion of potential impacts on sensitive species in Section 5.8.4. In addition, Section 5.5.4 discusses the potential impacts to groundwater related resources, including springs used by wildlife. BLM has initiated a consultation with the U. S.

Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act. Regarding the comment related to the "Owens Lake effect," see Master Response "Air Quality."

P1-8 The purpose and need and selection of the project are discussed in Section 2 of the Final EIR/EIS Volume I. Alternatives other than those near the Colorado River Aqueduct would not meet Metropolitan's objective of maintaining a full aqueduct in the Colorado River area. Metropolitan has implemented storage programs in the Central Valley that have stored approximately 550,000 acre-feet of water and have an anticipated dry-year yield of 140,000 acre-feet of water. See Final EIR/EIS Volume I, Section 2.5.4. These Central Valley programs are required in addition to programs along the Colorado River Aqueduct.

P1-9 The project does not include any use of surface flows or the capture of surface flows for groundwater recharge.

P1-10 Metropolitan will operate the project based on water demands in its service area, and all project operations will be governed by the Management Plan with oversight by the BLM.

P1-11 Neither BLM nor Metropolitan has provided stock in Cadiz to any consultants that have been involved in the preparation of the Final EIR/EIS.

P1-12 Comment noted. No response is necessary.

P2 RESPONSES TO COMMENTS FROM MR. RAMON A. MENDOZA DATED JANUARY 20, 2000

P2-1 Comments noted. See Responses to Comments P2-2 to P2-11, below.

P2-2 Boundaries of the watersheds in the eastern Mojave Desert are shown on Figure 5.5-2 of the Final EIR/EIS Volume I. The boundaries of the groundwater basins generally match the watershed boundaries presented on this figure. The Fenner, Bristol and Cadiz groundwater basins form a closed system that is not connected to the Ward Valley or Chemehuevi Valley aquifer systems, as described in Section 3.2 of the Cadiz Groundwater Storage and Dry-Year Supply Program, Draft Environmental Impact Report/Draft Environmental Impact Statement: Groundwater Resources Report (Metropolitan Report No. 1163).

P2-3 See Response to Comment P2-2. Since the adjacent basins are not hydraulically connected no study or monitoring is required.

P2-4 Yield from the upper and lower aquifer systems was not projected. Downhole flowmeter surveys will be generated in five selected extraction wells as part of the Management Plan. These flowmeter surveys will provide data regarding vertical variation in groundwater flow, and will be used to refine geohydrologic parameters used in groundwater models. Estimates of water yield from the upper and lower aquifers will then be modeled under the Management Plan. Extraction wells will not be drilled in bedrock aquifer mentioned in the comment. Actual yield will be governed by the Management Plan.

P2-5 Regarding the amount of natural recharge to the project area, see Master Response "Groundwater Monitoring and Management Plan." The determination that groundwater cannot escape from the Bristol, Cadiz and Fenner basins is based on the fact that, by definition, water cannot flow uphill (upgradient) or migrate through an impermeable material. Comments noted regarding Section 8.0 of the Groundwater Resources Technical Report.

P2-6 Comments noted. See Responses to Comments P2-7 to P2-11, below.

P2-7 Extraction of both stored Colorado River water and indigenous groundwater will be subject to the provisions of the Management Plan to avoid adverse impacts to critical resources. See Master Response "Groundwater Monitoring and Management Plan."

P2-8 Comment noted. Because the groundwater basin underlying the Ward Valley is not connected to the Cadiz/Fenner groundwater basin, no threat of contamination exists. Additionally, the "Ward Valley" project referred to is not considered a reasonably foreseeable future project.

P2-9 See Responses to Comments P2-2 and P2-5.

P2-10 The volume of water in the Bristol, Cadiz and Fenner basins is estimated to be 16.9 million acre-feet (California Department of Water Resources, 1975) as is stated in Section 5.5.4 of the Final EIR/EIS. Refining estimates of the volume of groundwater in the surrounding basins is not proposed under this project. Surrounding basins are not connected as discussed in Responses to Comments P2-2 and P2-5.

P2-11 By statute, Metropolitan can provide water only within its service area. The southwestern portion of San Bernardino County lies within the service area. Metropolitan currently supplies more 60,000 acre-feet of water per year to the Inland Empire Utilities District in San Bernardino County. This amount is projected to increase to 125,000 acre-feet per year by the year 2020.

P3 RESPONSES TO COMMENTS FROM MRS. MARK BRUBAKER DATED DECEMBER 9, 1999

P3-1 Metropolitan is not required by law to mail a Notice of Availability of a Draft Environmental Impact Report by certified mail. However, Metropolitan has historically used certified mail to assure that these types of notices are properly received by the intended recipients. Approximately 500 NOA's were mailed. At a cost of $3.20/each, the mailing cost was $1,600. Metropolitan's water rates are adopted annually but have remained constant over the last five years.

P3-2 Although the financial information requested is not an issue under CEQA or NEPA, it is available at the Metropolitan Water District of Southern California's Annual Report.

P4 RESPONSES TO COMMENTS FROM MARJORIE M. MIKELS DATED FEBRUARY 21, 2000

P4-1 An overview of comments received at the scoping meetings was provided in Section 1.6 of the Draft EIR/EIS and in Sections 1.5.1 and 12.2 of the Final EIR/EIS. As noted in the Final EIR/EIS, the Cadiz Groundwater Storage and Dry-Year Supply Program Draft EIR/EIS: Public Participation Report (Metropolitan Report No. 1161), containing all material received during the scoping process, including transcripts of the meetings is available for review at Metropolitan and BLM offices. The referenced attachment is included in this document. Please see Responses to Comments P4-17 through P4-58.

P4-2 Comments noted. Metropolitan has not applied for any public funding from the State of California for the Cadiz Project, and does not propose to.

P4-3 Because the conveyance pipeline and electrical distribution system would cross federal lands administered by the BLM, the BLM must consider whether to: 1) amend the California Desert Conservation Area Plan for an exception to the utility corridor requirement; and 2) grant rights-of-way to Metropolitan for construction and operation of the project. The information in the Final EIR/EIS, including the public and agency comments received, will be used by the BLM in considering whether or not to approve the amendment and grant necessary rights-of-way. The BLM's decision will be reflected in a Record of Decision(s) that will be issued following receipt of public comments on the Final EIR/EIS.

The commentor is on the mailing list of persons and agencies who received the Notice of Preparation of the EIR/EIS. The commentor attended and participated in the Cadiz Project scoping meeting at the Cadiz Ranch on February 23, 1999. A Notice of Intent to Prepare an Environmental Impact Statement was published in the Federal Register on Monday March 1, 1999. That notice stated that "The proposed action would also include a proposed plan amendment to the California Desert Plan." A Notice of Public Meeting and an extension of the original comment period also appeared in the Federal Register on May 4, 1999. That notice also specifically mentioned the CDCA Plan amendment.

P4-4 The comments do not raise issues under CEQA or NEPA and, therefore, no response is required.

P4-5 The comment does not raise an issue under CEQA or NEPA and, therefore, no response is required.

P4-6 The Final EIR/EIS does not presuppose a minimum amount of withdrawal of indigenous groundwater. BLM and Metropolitan, together with representative of the NPS, USGS and the County of San Bernardino, have developed the Groundwater Monitoring and Management Plan that is incorporated in the Final EIR/EIS to avoid impacts to critical resources. In compliance with CEQA and NEPA, an analysis of the potential impacts to water related resources and the Management Plan provisions that will monitor and manage the project operations to avoid those impacts, are set forth in Section 5.5.4 of Volume 1, and Sections 6 and 7 of Volume IV of the Final EIR/EIS.

P4-7 See Response to Comment P4-6, and Master Response "Water Quality."

P4-8 The impact of the Hector Mine earthquake on wells and other installations in the project vicinity is discussed in Section 5.4.1 of the Final EIR/EIS. As noted in that text, no damage to area wells and other installations as a result of this earthquake was observed. As noted in the discussion on regional seismicity, also in Section 5.4.1 of the Final EIR/EIS, the return interval for earthquakes on faults in the Mojave Desert area is typically on the order of 5,000 years or more. Therefore, the occurrence of an event such as the Hector Mine earthquake is a relatively rare event compared to earthquakes on some other faults in southern California, such as the San Andreas Fault.

P4-9 Section 5.10 (Hazards and Hazardous Materials) in the Final EIR/EIS discusses the potential impacts related to unexploded ordnance in the vicinity of the construction limits for the Cadiz Project. As discussed in Section 5.10.4, there is potential for significant adverse impacts associated with ordnance and explosive waste hazards. Mitigation Measures HM-1, HM-2 and HM-3 specifically address potential ordnance and explosive waste impacts associated with past military uses and activities in this area. However, as noted in Section 5.10.5, even with these

mitigation measures, there is potential for significant adverse impacts after mitigation associated with ordnance and explosive wastes. This is acknowledged as a potentially significant unavoidable adverse impact of the Cadiz Project in Section 8 (Unavoidable Significant Adverse Impacts).

P4-10 These comments do not raise an issue under CEQA or NEPA and , therefore, no response is required.

P4-11 See Response to Comment G13-10.

P4-12 See Response to Comments G13-10 and G13-13.

P4-13 California law recognizes that groundwater may be appropriated for non-overlying uses, including exportation for use outside the groundwater basin. Twentynine Palms is not within Metropolitan's service area and will not be served by the project.

P4-14 The comment does not raise an issue under CEQA or NEPA and, therefore, no response is required.

P4-15 The comment does not raise an issue under CEQA or NEPA and, therefore, no response is required.

P4-16 The use of groundwater for the Cadiz agricultural operations will be conducted in accordance with the Management Plan that is incorporated in the project (Final EIR/EIS, Volume IV). Operation of the project in accordance with the provisions of the Management Plan will avoid potential impacts to critical resources, as discussed in Section 5.5.4 and 5.5.5, Volume I, of the Final EIR/EIS.

Note: Comments P4-17 to P4-35 are from the March 21, 1999 NOP comment letter cited earlier in comment P4-1.

P4-17 Comments noted. See Responses to Comments P4-18 to P4-35, below.

P4-18 Metropolitan is the lead agency for purposes of CEQA because it is the public agency that will carry out the project. Metropolitan is seeking the grant of a utility right-of-way across the federal lands under the jurisdiction of the BLM in accordance with the Federal Land Policy and Management Act, 43 U.S.C. section 1761. The project does not involve any change in the amount of water Metropolitan receives from the Colorado River, and is in accordance with California law authorizing the appropriation of groundwater for non-overlying uses, including exportation for use outside the groundwater basin.

P4-19 The comment regarding Best, Best & Krieger does not raise an issue under CEQA or NEPA and, therefore, no response is required. Regarding the exportation of groundwater for use in Metropolitan's service area, see Response to Comment P4-13.

P4-20 There is no "connection" between the Cadiz Project and the "land deal" and "exchange" referenced in the comment.

P4-21 Metropolitan is the agency that will carry out the project. The use of groundwater outside the basin is authorized under California law.

P4-22 Metropolitan is complying with federal and state laws protecting species including the desert tortoise. A discussion of the mitigation measures that will be implemented to mitigate impacts to desert tortoise is set forth in Section 5.8.5, Volume I, of the Final EIR/EIS.

P4-23 The comment does not mention any specific corporations or groundwater basins, however, the project does not involve a transfer of water to a Cadiz Water Bank. The project is a conjunctive use project that provides storage of Colorado River water and the potential transfer of indigenous groundwater to meet dry year demand in Metropolitan's service area.

P4-24 The project is unrelated to any use of the Ward Valley basin. The potential use of Ward Valley for storage of Colorado River water was considered and eliminated from detailed analysis for the reasons stated in Section 3.5.3 of Volume I of the Final EIR/EIS.

There is no basis for the comment that the groundwater basin underlying the Cadiz Project is "salty." The water quality is discussed in Section 5.5.1 of Volume I of the Final EIR/EIS.

P4-25 The potential transfer of indigenous water as part of the project has been analyzed, and the Management Plan has been incorporated into the Final EIR/EIS, Volume IV, to avoid any potential impacts to critical resources from operation of the project including such transfers. The project does not involve any change in the amount of water Metropolitan receives from the Colorado River, and is in accordance with California law authorizing the appropriation of groundwater for non-overlying uses, including exportation for use outside the groundwater basin.

P4-26 The comment does not raise issues under CEQA or NEPA and, therefore, no response is required.

P4-27 The project is not being carried out under the authority granted by Congress pursuant to the Act of June 18, 1932. Metropolitan is the lead agency under CEQA because it is the public agency that will carry out the project. The BLM is the lead agency under NEPA because it will grant the rights-of-way required to construct the pipeline and electric transmission lines across federal lands. Other comments are noted, and because they do not raise issues under CEQA or NEPA, no response is required.

P4-28 The absence of any hydrologic continuity between the Fenner groundwater basin and the Ward Valley is discussed in Section 5.5.4, Volume I, of the Final EIR/EIS. The other comments do not raise an issue under CEQA or NEPA, and no response is necessary.

P4-29 There are no "connections" between the Cadiz Project and the "land deals" referenced in the comment. Land ownership in the project area is shown on Figure 5.2-1 of the Final EIR/EIS. The project wellfield will be constructed entirely on land owned by Cadiz Inc. Other comments do not raise an issue under CEQA or NEPA and no response is necessary.

P4-30 With the exception of the reference to the desert tortoise, these comments do not raise an issue under CEQA or NEPA and no response is required. Regarding the desert tortoise, see Response to Comment P4-22.

P4-31 Regarding the desert tortoise, see Response to Comment P4-22. The Cadiz Project will not extract water from Ward Valley.

P4-32 The Cadiz Project will not "store" water from the Ward or Fenner valleys. With this project, Metropolitan proposes to utilize the aquifer system underlying a portion of the Cadiz and Fenner valleys to store Colorado River water imported from the Colorado River Aqueduct. When needed, as in dry years, the stored water and indigenous groundwater will be extracted with wells and returned to the Colorado River Aqueduct for use within Metropolitan's service area. The project does not involve the delivery or use of water in groundwater basins along the Santa Ana River watershed. All Cadiz Project operations, including extraction of groundwater, will be governed by and subject to the provisions of the Management Plan, presented in Volume IV of the Final EIR/EIS The issue of growth inducement is discussed in Section 6, Volume I, of the Final EIR/EIS. The project does not involve any change in the amount of water received by Metropolitan from the Colorado River.

P4-33 The Cadiz Project will not extract water from Ward Valley.

P4-34 As discussed in Section 5.5.4, Volume I, of the Final EIR/EIS, the Cadiz Project will not have an adverse effect on the water supply of the Needles area.

P4-35 Comments noted. No response is necessary.

Note: Comments P4-36 to P4-58 are from the March 23, 1999 NOP comment letter cited earlier in comment P4-1.

P4-36 Comments noted. See Responses to Comments P4-17 to P4-35, above, for responses to the cited March 1999 letter.

P4-37 Comments noted. See Responses to Comments P4-38 to P4-58, below.

P4-38 Metropolitan and BLM are the state and federal lead agencies for preparation of the EIR and the EIS pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), respectively. Because the Cadiz Project conveyance pipe-line and electrical distribution system will cross federal lands administered by the BLM, the BLM must consider whether to: 1) amend the California Desert Conservation Area Plan for an exception to the utility corridor requirement; 2) grant rights-of-way to Metropolitan for construction and operation of the project.

Regarding Metropolitan's authority to act as CEQA lead agency, see Response to Comment G2-3.

P4-39 BLM must consider whether to: 1) amend the California Desert Conservation Area Plan for an exception to the utility corridor requirement; and 2) grant rights-of-way to Metropolitan for construction and operation of the project. The information in the Final EIR/EIS, including the public and agency comments received, will be used by the BLM in considering whether or not to approve the amendment and grant necessary rights-of-way. When the BLM has made a determination, it will issue its Record of Decision.

The economic issues referenced in the comment do not raise issues under CEQA or NEPA and, therefore, no response is required. Regarding the exportation of groundwater for use in Metropolitan's service area, see Response to Comment P4-13.

P4-40 See Response to Comment G2-4.

P4-41 The comment is too general to permit a response.

P4-42 Comment noted. The comment does not raise an issue under CEQA or NEPA and, therefore, no response is required.

P4-43 Regarding the authority of Metropolitan to act as CEQA lead agency, see Response to Comment G2-3. BLM is the lead agency for NEPA purposes. The project does not include the extraction of water from the Ward Valley. The potential impacts to water resources in the Fenner Valley are discussed in Section 5.5.4, Volume I, of the Final EIR/EIS. California law authorizes the appropriation of groundwater for non-overlying uses, including exportation for use outside the groundwater basin.

P4-44 See Response to Comment P4-3.

P4-45 The economic issues referenced in the comment do not raise issues under CEQA or NEPA and, therefore, no response is required.

P4-46 See Response to Comment P4-3.

P4-47 As noted in the comment, California law authorizes the appropriation of groundwater. The uses to which groundwater may be put include non-overlying uses outside the groundwater basin.

P4-48 Ownership of land in the project area is depicted in Figure 5.2-1 in Volume I of the Final EIR/EIS. The extraction of groundwater for use in Metropolitan's service area is authorized under California law without any requirement that "rights" to surplus water be purchased. The use of groundwater by Cadiz Inc. for agricultural operations on overlying land is discussed in Section 7.2.4, Volume I, of the Final EIR/EIS. The amount of indigenous water that may be extracted under the project is subject to the provisions of the Management Plan (Volume IV, Final EIR/EIS).

P4-49 In response to differences of opinion among experts regarding the amount of recharge to the project area groundwater basin, BLM and Metropolitan developed the Groundwater Monitoring and Management Plan that is incorporated in the Final EIR/EIS (Volume IV). The project will be operated in accordance with the Management Plan to avoid impacts to critical resources.

P4-50 As discussed in Section 5.5.4, Volume I, of the Final EIR/EIS, there is no groundwater continuity between the project area and the City of Needles.

P4-51 The Metropolitan Water District of Southern California will operate the project. Cadiz Inc. will grant Metropolitan a right to use of its overlying land for the operation of the project, including the extraction of groundwater from the overlying land.

P4-52 California law recognizes that groundwater may be appropriated for non-overlying uses, including exportation for use outside the groundwater basin.

P4-53 See Master Response "Groundwater Monitoring and Management Plan."

P4-54 California law recognizes that groundwater may be appropriated for non-overlying uses, including exportation for use outside the groundwater basin.

P4-55 The project does not include any change in the amount of water received by Metropolitan from the Colorado River, nor is there any groundwater continuity between the Fenner Valley and the Colorado River. See Section 5.5.4, Volume I, Final EIR/EIS. Therefore, the project will not have any impact on the Lower Colorado River.

P4-56 Metropolitan will not "take" water rights held by other property owners in the implementation of the Cadiz Groundwater Storage and Dry-Year Supply Program. California law authorizes the use of groundwater for non-overlying uses, including exportation for use outside the groundwater basin.

P4-57 See Response to Comment P4-56.

P4-58 BLM is performing its obligations in accordance with the National Environmental Policy Act (NEPA) and Federal Land Policy and Management Act (FLPMA). The contamination of other groundwater basins referenced in the comment is not related to this project, and no comment is required. The project does not involve the dilution of polluted groundwater basins with indigenous groundwater from the project area. Regarding the desert tortoise, see Response to Comment P4-22.

P5 RESPONSES TO COMMENTS FROM JEFF WRIGHT DATED FEBRUARY 22, 2000

P5-1 Project financing does not raise an issue under CEQA or NEPA and, therefore, no response is required. However, Metropolitan does not intend to apply for state bond funds for the project.

P5-2 See Response to Comment F2-4.

P6 RESPONSES TO COMMENTS FROM KEVIN EMMERICH AND LAURA CUNNINGHAM DATED FEBRUARY 25, 2000

P6-1 Comments noted. See responses to comments P6-2 to P6-15, below.

P6-2 Comments noted. No response is necessary.

P6-3 Section 5.5.4, Volume I, of the Final EIR/EIS, identifies the amount of water lost to evaporation from the project spreading basins as 3 percent of the total volume of water delivered for storage.

P6-4 The project does not make any change in the amount of water received by Metropolitan from the Colorado River. As noted in the comment and discussed in Section 2.5.3, Volume I, of the Final EIR/EIS, the adoption of Interim Surplus Criteria by the Secretary of the Interior is anticipated to make available to Metropolitan adequate supplies of Colorado River water to allow storage as part of the Cadiz Project. Water held in storage will be available to be extracted during any dry years that occur during the project for delivery to Metropolitan's service area.

P6-5 The Cadiz Project does not presume to extract 2,000,000 acre feet of indigenous groundwater, or any other predetermined amount. BLM and Metropolitan have developed the Management Plan that is incorporated in the Final EIR/EIS (Volume IV) to avoid adverse impacts to critical

resources. The project will be operated in accordance with the Management Plan. For a discussion of potential impacts from land subsidence and changes in groundwater levels, see Section 5.5.4, Volume I, of the Final EIR/EIS. For the monitoring and management measures that will be implemented to avoid such impacts, see Sections 6 and 7 of the Management Plan (Volume IV of the Final EIR/EIS).

P6-6 The Cadiz Project does not presume to extract 30,000 acre feet of indigenous groundwater per year. See Response to Comment P6-5.

P6-7 See Master Response "Groundwater Monitoring and Management."

P6-8 BLM is the federal lead agency for preparation of the EIS pursuant to the National Environmental Policy Act (NEPA), and will retain the authority to enforce the terms and conditions of any right-of-way grant(s) issued for the project. This will include authority to enforce provisions of the Management Plan, as described in Section 10 of the Plan (Volume IV, Final EIR/EIS).

P6-9 The comment does not raise an issue under CEQA or NEPA and, therefore, no response is required. Regarding the time provided for public review and comment, see Response to Comment F2-4.

P6-10 The Cadiz Project does not presume that any amount of indigenous groundwater will be extracted. The amount will be subject to operation of the project in accordance with the Groundwater Monitoring and Management Plan. Section 5.3.3 of the Cadiz Groundwater Storage and Dry Year Supply Program Environmental Planning Technical Report, Goundwater Resources Report—Volume 1 (Report No. 1163), stated that groundwater in the project area moves at a velocity of approximately 1 to 2 feet per day (approximately 365 to 730 feet per year). Considering an average rate of 550 feet per year, it would take over 10 years for stored water migrate from the spreading basin to the periphery of the recovery wellfield; therefore, it is not anticipated that there will be losses due to migration of the water to the dry lakes. The stored water will be monitored, and may be extracted and delivered to the CRA or re-spread if necessary to retain the stored water in the area of the project wellfield.

P6-11 Comments noted. See Master Response "Groundwater Monitoring and Management Plan," and Responses to Comments F2-60 and R3-58.

P6-12 Regarding water demand projections in the Metropolitan service area, see Sections 2.3 and 2.4 of the Final EIR/EIS, Volume I. Regarding request for supplement see Master Response "Need for Supplement/Recirculation."

P6-13 Potential impacts of the project on biological resources, including the desert tortoise and Mojave fringe-toed lizard, are discussed in Section 5.8.4 of the Final EIR/EIS, Volume I. Mitigation measures to mitigate the impacts on such resources and species are discussed in Section 5.8.5.

Potential impacts of the project associated with wilderness values are discussed in Section 5.17.4 (Wilderness/Recreation) of the Final EIR/EIS, Volume I. Mitigation measures to mitigate impacts on wilderness resources are discussed in Section 5.17.5.

P6-14 Comments noted. No response is necessary.

P6-15 See Response to Comment F2-4.

P7 RESPONSES TO COMMENTS FROM CHRISTINE CARRAHER AND JERRY SMITH DATED FEBRUARY 29, 2000

P7-1 Comment noted. No response is necessary.

P7-2 See Master Response "Need for Supplement/ Recirculation."

P7-3 A copy of the cited March 16, 1999 letter is attached; responses to those comments are provided below. See Responses to Comments P7-18 to P7-32.

P7-4 See Response to Comment G2-3.

P7-5 Section 2.4.4 of the Final EIR/EIS, Volume I, discusses the conservation programs that are being implemented by Metropolitan and its member agencies.

P7-6 The potential impacts on other communities related to water resources is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I.

P7-7 The project includes the extraction of indigenous groundwater that is surplus to overlying uses for use in Metropolitan's service area. The project will be implemented in accordance with the Management Plan (Final EIR/EIS, Volume IV) to avoid impacts to critical resources in the project area. Since Metropolitan provides water to its member agencies and does not deliver water to retail consumers, it has no authority to require installation of water meters.

P7-8 See Master Response "Groundwater Monitoring and Management Plan."

P7-9 Implementation of the Groundwater Monitoring and Management Plan is an obligation of Metropolitan pursuant to CEQA. The BLM will retain authority to enforce the Management Plan through the terms and conditions of its right-of-way grant(s) for the project. The BLM will also consider technical comments and recommendations received from other federal agencies and the County of San Bernardino as described in Section 9 of the Management Plan (Final EIR/EIS, Volume IV). No other committee will be created to administer the project. Information on the implementation of the Management Plan will be available to the public through the annual and five-year reports described in Section 6.8 of the Management Plan.

P7-10 See Response to Comment P7-9.

P7-11 As described in Section 6.8 of the Management Plan, annual and five-year reports that summarize all the data collected will be made available to the public.

P7-12 The potential impacts to indigenous groundwater quality due to storage of Colorado River water is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid such impacts are described in Sections 6 and 7 of the Management Plan (Final EIR/EIS, Volume IV).

P7-13 See Response to Comment P7-12.

P7-14 Section 5.5.4 of the Final EIR/EIS, Volume I, discusses the potential impacts on water related resources, including changes in groundwater elevations. Sections 6 and 7 of the

Management Plan (Final EIR/EIS, Volume IV) describes the monitoring and management measures that will be implemented to avoid adverse impacts to groundwater related critical resources from project operations, including subsidence.

P7-15 See Master Response "Groundwater Monitoring and Management Plan." For additional information regarding "trigger thresholds," Management Plan action criteria, decision-making process and corrective measures are defined in Section 7 of the Final EIR/EIS, Volume IV.

P7-16 Implementation of the Closure Plan described in Section 8 of the Management Plan (Final EIR/EIS, Volume IV), requires that any decline in static groundwater levels not exceed an average of 100 feet or lead to projections of adverse impacts to critical resources.

P7-17 Comments noted. No response is necessary.

P7-18 Comments noted. See Responses to Comments P7-19 to P7-32.

P7-19 For information regarding water quality issues, see Master Response "Water Quality." The potential impacts to water quality in the aquifer from project operations is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures that will be implemented to avoid water quality impacts from the project are described in Sections 6.2 and 7.2 of the Management Plan (Final EIR/EIS, Volume IV).

P7-20 See Responses to Comments G2-5 and G2-6.

P7-21 Analysis of water supply and demand in the entire Southern California region is beyond the scope of the analysis required by CEQA and NEPA for a project-level EIR/EIS. The Final EIR/EIS discusses water demand projections in the Metropolitan service area in Section 2.0 as part of the purpose and need for the project. The project will not affect water supply or demand projections in the Mojave desert areas.

P7-22 The Cadiz Project does not provide that any specific amount of indigenous groundwater will be removed . Instead, operations of the project will be implemented in accordance with the Management Plan to avoid adverse impacts to critical resources. See Master Response "Groundwater Monitoring and Management Plan."

P7-23 See Master Response "Growth Inducement."

P7-24 Regarding water conservation, see Master Response "Water Conservation." BLM and Metropolitan have developed the Groundwater Monitoring and Management Plan that will be implemented to avoid adverse impacts to water resources in the project area. See Final EIR/EIS, Volume IV.

P7-25 The Groundwater Monitoring and Management Plan incorporates protections to prevent impacts to wells and springs outside of the Cadiz Project area. No adverse impacts to existing or foreseeable overlying uses will occur and the project does not affect the water rights of adjacent property owners. Therefore, there would be no effects on development in desert areas through loss of water supply. Since there would be no loss of water supply, there would be no adverse environmental justice impacts.

P7-26 See discussion of "Potential Impacts to Fenner Gap Microclimate" in Section 5.5.4 of the Final EIR/EIS, Volume I.

P7-27 Section 5.8.4 of the Final EIR/EIS, Volume I, includes a discussion of potential impacts on biological resources, including effects on wildlife movement, effects of increased human activities, and effects of soil disturbance and erosion on habitat. The potential impacts to biological resources related to springs is discussed in Section 5.5.4 .

P7-28 The potential effects of subsidence resulting from project operations is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. The potential effects of the project on erosion, soils, and geology are discussed in Section 5.5.4 of the Final EIR/EIS, Volume I.

P7-29 Visual changes that will result from implementation of the project are discussed in Section 5.14 (Aesthetics) of the Final EIR/EIS, Volume I.

P7-30 Impacts to vistas in wilderness areas are discussed in Section 5.14 of the Final EIR/EIS, Volume I.

P7-31 The impact analyses in Section 5.0 (Affected Environment, Impacts and Mitigation) of the Final EIR/EIS, Volume I, considers project impacts through the 50 year life of the project.

P7-32 Comments noted. No response is necessary.

P8 RESPONSES TO COMMENTS FROM WILLIAM T. MCCARVILL DATED MARCH 2, 2000

P8-1 BLM and Metropolitan have developed the Groundwater Monitoring and Management Plan that is incorporated in the Final EIR/EIS (Volume IV). The project will be implemented in accordance with the Management Plan to avoid impacts to critical resources, including springs.

P9 RESPONSES TO COMMENTS FROM ALAN SIRACO AND AMANDA K. ROZE DATED MARCH 3, 2000

P9-1 See Master Response "Need for Supplement/Recirculation."

P9-2 See Master Response "Growth Inducement."

P9-3 See Master Response "Alignment Alternatives."

P9-4 See Master Response "Groundwater Monitoring and Management Plan."

P9-5 See Response to Comment F2-2.

P9-6 Comments noted. No response is necessary.

P10 RESPONSES TO COMMENTS FROM DENNIS BELL DATED MARCH 4, 2000

P10-1 See Response to Comment F2-4.

P10-2 See Response to Comment F2-4.

P10-3 The comment does not raise an issue under CEQA or NEPA and, therefore, no response is required.

P10-4 Comments noted. No response is necessary.

P10-5 See Master Response "Growth Inducement."

P10-6 See Master Response "Water Conservation."

P11 RESPONSES TO COMMENTS FROM STAN HAYE DATED MARCH 4, 2000

P11-1 Comments noted. See Responses to Comments P11-2 to P11-12, below.

P11-2 BLM and Metropolitan have developed the Groundwater Monitoring and Management Plan that is incorporated in the Final EIR/EIS (Volume IV). This Management Plan includes modeling of the groundwater to assist in the analysis of project operations and avoid adverse impacts to critical resources (Section 3). These models, in conjunction with monitoring data, will provide information regarding basin recharge and the effect of project operations on the basin which will be used to identify the effects of subsurface geologic conditions.

P11-3 The Cadiz Project does not include any specific amount of groundwater extraction. Project operations will be implemented in accordance with the Management Plan to avoid adverse impacts to critical resources. The potential for saltwater intrusion is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I, and the monitoring and management measures to avoid this impact are discussed in Sections 6.2 and 7.2.6 of the Management Plan (Final EIR/EIS, Volume IV).

P11-4 In accordance with California law, the project includes the potential extraction of groundwater for use outside the basin. Any water extraction will be implemented in accordance with the provisions of the Management Plan to avoid adverse impacts to critical resources.

P11-5 See Master Response "Groundwater Monitoring and Management Plan."

P11-6 Project operations will be implemented in accordance with the Management Plan to avoid adverse impacts to critical resources, including springs. See Sections 6.1 and 7.1, Final EIR/EIS, Volume IV.

P11-7 Project operations will be implemented in accordance with the Management Plan to avoid adverse impacts to critical resources, including water quality in the groundwater basin. See Sections 6.2 and 7.2.1, Final EIR/EIS, Volume IV.

P11-8 The potential for subsidence and loss of storage capacity due to groundwater extraction are discussed in Section 5.5.4 of the Final EIR/EIS, Volume I and Section 2.2 of the Management Plan (Final EIR/EIS Volume IV).

P11-9 See Response to Comment G6-8.

P11-10 The project does not make any change in the amount of water received by Metropolitan from the Colorado River. As discussed in Section 2.5.3, Volume I, of the Final EIR/EIS, the

adoption of Interim Surplus Criteria by the Secretary of the Interior is anticipated to make available to Metropolitan adequate supplies of Colorado River water to allow storage as part of the Cadiz Project. Water held in storage will be available to be extracted during any dry years that occur during the project for delivery to Metropolitan's service area.

P11-11 See Master Response "Alignment Alternatives."

P11-12 Comment noted. No response is necessary.

P12 RESPONSES TO COMMENTS FROM CAROL A. LANDRY DATED MARCH 5, 2000

P12-1 Comments noted. No response is necessary.

P12-2 The Cadiz Project does not include any specific amount of indigenous groundwater that may be extracted. Project operations will be implemented in accordance with the Management Plan (Final EIR/EIS, Volume IV) to avoid adverse impacts to critical resources.

P12-3 The potential impacts to springs used by bighorn sheep or other species is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid impacts to springs are set forth in Sections 6.1 and 7.1 of the Management Plan (Final EIR/EIS, Volume IV).

P12-4 Comments noted. See Master Response "Need for Supplement/Recirculation."

P12-5 Comment noted. No response is necessary.

P12-6 See Response to Comment F2-4.

P13 RESPONSES TO COMMENTS FROM INGRID CRICKMORE DATED MARCH 6, 2000

P13-1 See Master Response "Need for a Supplement/Recirculation."

P13-2 The Cadiz Project does not include a specific amount of indigenous groundwater that may be extracted. Project operations will be implemented in accordance with the Management Plan (Final EIR/EIS, Volume IV) to avoid adverse impacts to critical resources.

P13-3 See Response to Comment P13-2.

P13-4 See Response to Comment P13-2.

P13-5 Comment noted. No response is necessary.

P13-6 See Response to Comment F2-2.

P13-7 See Response to Comment P6-10.

There will be some losses of imported Colorado River water during the spreading operation due to evaporation when the water is in the spreading basins and exposed to the air. As described in the Final EIR/EIS, Volume I, Section 5.5.4, the amount of water expected to

evaporate from the project spreading basins will be approximately 3 percent of the total volume of water stored.

P13-8 See Response to Comment P6-4.

P13-9 The comment does not raise an issue under CEQA or NEPA and, therefore, no response is required.

P13-10 The aesthetic impacts from project facilities, including impacts from the project power distribution facilities, are discussed in Section 5.14.4, of the Final EIR/EIS, Volume I.

The preferred alternative (the Eastern Alignment) by passes the Cadiz Dunes Wilderness Area. The segment of this alignment referenced in the comment follows an existing, maintained roadway (Cadiz Rice road) and is immediately adjacent to the Arizona California rail line and accompanying overhead telephone lines. This rail line is used on a daily basis.

Regarding undergrounding of the power distribution lines, see Response to Comment G6-21.

P13-11 The aesthetic impacts from project facilities are discussed in Section 5.14.4, of the Final EIR/EIS, Volume I. Regarding the potential right-of-way along the existing railroad corridor, see Master Response "Alignment Alternatives."

P13-12 As discussed in Section 3.7.3 of the Final EIR/EIS, crossing the Danby Dry Lake was seen as an undesirable route for both engineering and environmental reasons. As part of the alternatives screening process, three separate pipeline design alternatives were considered for crossing Danby Dry Lake. See Master Response "Danby Dry Lake Alignment."

P13-13 The Groundwater Monitoring and Management Plan is set forth in Volume IV of the Final EIR/EIS. BLM oversight is described in Section 10. Annual and five year reports on project operations will be made available to the public as described in Section 6.8.

P13-14 See Master Response "Water Quality."

P13-15 See Master Response "Need for Supplement/Recirculation."

P13-16 Comments noted. No response is necessary.

P14 RESPONSES TO COMMENTS FROM HANAFI RUSSELL DATED MARCH 7, 2000

P14-1 Comments noted. Regarding the letter of comment submitted by "Desert Survivors" see Responses to Comments G6-1 through G6-22. Regarding the "USGS Report" see Response to Comment F2-60.

P15 RESPONSES TO COMMENTS FROM JERRY SMITH DATED MARCH 8, 2000

P15-1 See Response to Comment F2-4. In addition to a February 5, 1999 mailing, a notice of the February 1999 scoping meetings was published in the *San Bernardino Sun*. These meetings were held at Cadiz Ranch and the Twentynine Palms City Hall. Follow-up articles appeared in the *San Bernardino Sun* on March 29 and May 10, 1999. Notices appeared in the Federal Register on March 1, 1999 and May 4. The latter, and the May 10 *San Bernardino Sun* article, noticed an additional public meeting to be held on May 10, 1999 in the Needles City

Hall and extended the public comment period for scoping to May 10, 1999. In addition articles also appeared in the *Needles Desert Star* on April 28, 1999 and the *Paramount Journal* of May 13, 1999.

P15-2 See Master Response "Formulation and Screening of Potential Projects" and Response to Comment F2-16.

P15-3 See Master Response "Groundwater Monitoring and Management Plan." A discussion of potential impacts related to groundwater resources is set forth in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid adverse impacts to critical resources are described in Sections 6 and 7 of the Management Plan (Final EIR/EIS, Volume IV).

P15-4 The Draft EIR/EIS consists of one volume, Draft Environmental Impact Report/Draft Environmental Impact Statement, SCH. No 99021039, Metropolitan Water District Report (Report No. 1157). As cited on the preface page in the Draft EIR/EIS (the first page following the three page cover letter), there are a number of technical reports in support of the Draft EIR/EIS. The findings of each of these technical reports are described in detail in the Draft EIR/EIS. Therefore, the Draft EIR/EIS is a complete technical analysis of the potential impacts of the proposed Cadiz Project. The technical reports were made available during the public review period at Metropolitan's office in Los Angeles, the BLM office in Riverside, the San Bernardino County Library branches in San Bernardino, Needles, Twentynine Palms, and Barstow.

P16 RESPONSES TO COMMENTS FROM CAROL A. WILEY DATED MARCH 6, 2000

P16-1 Regarding the USGS report, see Master Response "Groundwater Monitoring and Management Plan."

P16-2 See Master Response "Need for Supplement/Recirculation."

P16-3 Comments noted. No response is necessary.

P17 RESPONSES TO COMMENTS FROM BARRY AND LESLIE MELIUS (NO DATE)

P17-1 Regarding bighorn sheep, see Response to Comment P12-3. The Chukar Grouse is not indicated to be a special interest species, therefore, a focused survey was not conducted.

P17-2 The potential impacts to springs are discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid adverse impacts to critical resources, including springs, are set forth in Sections 6.1 and 7.1 of the Management Plan (Final EIR/EIS, Volume IV).

P17-3 Comments noted. No response is required.

M1 RESPONSES TO COMMENTS RECEIVED AT THE DECEMBER 15, 1999 PUBLIC HEARING (CADIZ)

The December 15, 1999 Public Hearing at Cadiz consisted of formal presentations by Metropolitan and P&D Environmental staff, followed by public comment. The transcript for this meeting includes both the formal presentations and the public comments. The transcript

of the formal presentation is on pages 1 through 17 of the transcript. The part of the transcript for public comments is on pages 17 through 19 of the transcript.

M1-1 The potential for migration of saline water underlying the Bristol and Cadiz Dry Lakes is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid adverse impacts to critical resources, including migration of the saline water, are set forth in Sections 6.2, 6.3, and 7.2.6 of the Management Plan (Final EIR/EIS, Volume IV).

M1-2 Comments noted. No response is necessary.

M2 RESPONSES TO COMMENTS RECEIVED AT THE DECEMBER 15, 1999 PUBLIC HEARING (TWENTYNINE PALMS)

The December 15, 1999 Public Hearing at the City of Twentynine Palms City Hall consisted of formal presentations by Metropolitan and P&D Environmental staff, followed by public comment. The transcript for this meeting includes both the formal presentations and the public comments. The transcript of the formal presentation is on pages 1 through 23 of the transcript. The part of the transcript for public comments is on pages 23 through 39 of the transcript. There are also intermittent public comments on pages 39 through 61 of the transcript.

M2-1 The project does not affect existing or foreseeable uses of the groundwater by overlying owners. Potential impacts to adjoining landowners are discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid adverse impacts to critical resources, including groundwater use by other overlying owners, are set forth in Section 6.2 and 7.2.2 of the Management Plan (Final EIR/EIS, Volume IV). Regarding potential non-overlying users in San Bernardino, see Response to Comment P2-11.

M2-2 The solicitation of public comments during the Scoping/Notice of Preparation (NOP) phase of the environmental process is intended to solicit input from responsible agencies, other agencies and members of the general public regarding what issues should be addressed in an environmental document. Section 1.5 (Background to the EIR/EIS) in the Final EIR/EIS, Volume I, summarizes the public scoping process during the NOP phase and the types of input received regarding issues which should be addressed in the EIR/EIS. Compliance with the California Environmental Quality Act (CEQA) does not require interim reporting to commentors. The EIR/EIS is the document that provides detailed analysis responding to issues raised during the NOP phase.

M2-3 The 90-day comment period, later extended to 104 days, was adopted to provide more time for public review and comment than the minimum required review period of 60 days for an EIS and 45 days for an EIR. The time needed to prepare the Draft EIR/EIS reflected, among other things the need for alignment surveying and staking, seasonal biological resource surveys, pilot studies for groundwater spreading and groundwater modeling. Also see Response to Comment F2-4.

M2-4 Regarding the potential for long-term drawdown of groundwater within and surrounding the project area please see Master Response "Groundwater Monitoring and Management Plan" and Response to Comment F2-53.

M2-5 See Response to Comment P4-8.

M2-6 The Draft EIR/EIS and the supporting technical reports were made available at four public libraries in the project area, including the Twentynine Palms Branch Library as cited on page three in the cover sheet of the Draft EIR/EIS. Metropolitan confirmed that each library had their copies available to the public. The 90-day (not 60 day) comment period was extended an additional two weeks for a total of 104 days.

M2-7 Comment noted. See Response to Comment M2-6.

M2-8 The reference to internal pressure in Table ES-2 of the Draft EIR/EIS is a measure of the pressure exerted on the inside of the pipeline wall. The measurement in the table indicates the height water would rise to if not contained in the pipeline. It is measured in feet.

M2-9 A biological assessment was prepared in October 1999, entitled Desert Tortoise Biological Assessment for the Cadiz Groundwater Storage and Dry-Year Supply Program, addressing impacts to the desert tortoise and its natural habitat. During the year 1999 biological resources were surveyed by field teams on February 17, 20, and 21, March 22-30, April 1, 5-7 and 27-29, May 10-14, 24, 26, 30, and 31, 1999. Surveys of the pipeline alignment and spreading basins were performed specifically for the desert tortoise biological assessment between March 24 and March 30, 1999.

M2-10 The Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report – Project Feasibility and Facilities Report (Report No. 1162) presents the preliminary work that has been completed for the major project components. Specifically, a process flow schematic for all project alternatives is presented in Figures ES-2 and ES-3. Schedule (phase) information is also provided. See Figures 11-1 and 11-2.

M2-11 Section 5.4 (Topography, Geology, Seismicity and Soils) of the Final EIR/EIS, Volume I, summarizes the appropriate facilities and operational procedures necessary to minimize potential impacts due to seismic events and water discharge due to earthquake-related damage. No "active", "sufficiently active" or "well defined" faults have been identified in proximity to the Cadiz Project Area . However, in order to minimize potential seismic impacts, design measures would include ensuring that all structures associated with the Cadiz Project, including the water conveyance facility and wellfield manifold, would be designed and constructed in compliance with current engineering practices, including the Uniform Building Code and all applicable seismic engineering guidelines (Mitigation Measure G-1).

M2-12 See Response to Comment M2-11.

M2-13 Comments noted. See Response to Comment M2-3.

M2-14 See Master Response "Groundwater Monitoring and Management Plan."

M2-15 In general, if precipitation exceeds infiltration capacity (this would include flood events), overland flow occurs. When overland flow occurs, some amount of surface water flows to the surface of Cadiz or Bristol dry lake. These lake surfaces are normally dry, but runoff from major winter storms and late summer thunderstorms can result in occasional standing water. The potential impacts on groundwater resources from project operations, including storage operations, are discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid adverse impacts to critical resources are set forth in Sections 6 and 7 of the Management Plan (Final EIR/EIS, Volume IV).

M2-16 See Master Response "Groundwater Monitoring and Management Plan."

M2-17 Metropolitan is responsible for implementing the Groundwater Monitoring and Management Plan pursuant to CEQA. The Management Plan includes monitoring and management measures related to protection of water quality (Sections 6.2 and 7.2.1 of the Management Plan, Final EIR/EIS, Volume IV). BLM has authority to enforce the Management Plan through the terms and conditions of the right-of-way grant(s) for the project (Section 10 of the Management Plan).

M2-18 The potential impacts on groundwater resources from project operations, including the effect of higher total dissolved solids (TDS) in Colorado River water, are discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Extraction wells will be screened in the upper alluvial sediment to allow extraction of the stored water containing the higher levels of TDS.

M2-19 Sections 1.5 (Background to the EIR/EIS) of the Final EIR/EIS, Volume I, summarizes the public scoping process during the NOP phase and the types of input received regarding issues which should be addressed in the EIR/EIS. The Cadiz Groundwater Storage and Dry-Year Supply Program Draft EIR/EIS: Public Participation Report (Report No. 1161) (November 1999) provides a detailed summary of all public comments received at the NOP Public Scoping Meetings, including the meeting held in Needles on May 10, 1999.

M2-20 Disposal of accumulated sediments in the spreading basins that is suitable for agricultural purposes would be applied to cultivated Cadiz Inc. agricultural lands. Any such material that is not suitable for agricultural uses would be disposed of at an appropriate landfill.

M2-21 See Master Response "Groundwater Monitoring and Management Plan."

M2-22 The absence of a connection between the groundwater in the Twentynine Palms area and the project area is discussed in Section 5.5.4 of the Final EIR/EIS, Volume 1.

M2-23 See Response to Comment P4-8.

M2-24 See Response to Comment M2-8.

M2-25 See Response to Comment M2-6.

M2-26 Comment noted.

M2-27 See Master Response "Groundwater Monitoring and Management Plan."

M2-28 All the comments received at the three Public Hearings for the Draft EIR/EIS are included in the meeting transcripts included in this Responses to Comments Report. For additional information refer to the Draft Environmental Impact Report/Draft Environmental Impact Statement Public Participation Report (Report No. 1161), November 1999.

M2-29 The salinity of Colorado River water is the result of: 1) dissolution of naturally-occurring salt deposits in sediments that occur in contact with both surface and subsurface tributary flow to the Colorado River; 2) increases in salinity due to man-made causes (for example, agricultural irrigation run-off); and 3) increases in salinity due to evaporation of water from the Colorado River (for example, evaporation loss that occurs from surface reservoirs).

M2-30 The State of California guideline for TDS concentration in drinking water is a maximum of 1,000 mg/L. However, all groundwater having a TDS below 3,000 mg/L is considered by the State to be a potential domestic or municipal source of supply.

M2-31 The potential impacts to air quality from sediment in the spreading basins is discussed in Section 5.6.4 of the Final EIR/EIS, Volume I. Mitigation Measure AQ-9 provides for the application of soil binders to the spreading basins to control wind-blown dust.

M2-32 The comments from the public hearing have been addressed in this Responses to Comments Report and are part of the Final EIR/EIS that will be considered by the BLM and Metropolitan in their subsequent decision-making on the Cadiz Project.

M3 RESPONSES TO COMMENTS RECEIVED AT THE DECEMBER 16, 1999 PUBLIC HEARING (NEEDLES)

The December 16, 1999 Public Hearing at the City of Needles City Hall consisted of formal presentations by Metropolitan and P&D Environmental staff, followed by public comment. The transcript for this meeting includes both the formal presentations and the public comments. The transcript of the formal presentation is on pages 1 through 19 of the transcript. The part of the transcript for public comments is on pages 19 through 31 of the transcript. There are also intermittent public comments on pages 31 through 48 of the transcript.

M3-1 The Metropolitan Water District of Southern California (Metropolitan) and the United States Department of the Interior, Bureau of Land Management (BLM) are jointly evaluating the Cadiz Project. Metropolitan and BLM are the state and federal lead agencies for preparation of the EIR and the EIS pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), respectively.

M3-2 Comments noted. No response is necessary.

M3-3 Comments noted. No response is necessary.

M3-4 See Response to Comment M3-1.

M3-5 The legal requirements under CEQA and NEPA for a sufficient EIR/EIS are generally contained in California Public Resources Code sections 21000- 21178; CEQA Guidelines, 14 Cal. Code of Regs. sections 15000-15387, 42 U.S.C. sections 4321-4347, and 40 C.F.R. Parts 1500-1508.

M3-6 No new legislation has been enacted since the publication of the Draft EIR/EIS that would affect the environmental analysis for the Cadiz Project.

M3-7 See Response to Comment G2-4.

M3-8 The comment does not identify the referenced people and, therefore, no response is possible.

M3-9 See Response to Comment G12-1.

M3-10 See Response to Comment G13-13.

M3-11 The amount of indigenous groundwater that could be supplied by the Cadiz Program, if any, will be subject to the provisions of the Management Plan. See Response to Comment F2-2. Metropolitan does not receive any water from the Owen's Valley. The amount of water that is imported by the Los Angeles Department of Water and Power from the Eastern Sierra Nevada mountains is discussed in Section 2.5.4 of the Final EIR/EIS, Volume I. Metropolitan's use of Colorado River water is discussed in Section 2.5.3.

M3-12 These comments do not raise issues under CEQA or NEPA and, therefore, no response is required.

M3-13 See Response to Comment G13-13.

M3-14 No response is necessary.

M3-15 No water will be taken from Ward Valley under this project.

M3-16 The potential impacts to adjacent landowners is discussed in Section 5.5.4 of the Final EIR/EIS, Volume I. Monitoring and management measures to avoid adverse impacts to critical resources, including the wells of adjacent landowners, are set forth in Sections 6 and 7 of the Management Plan (Final EIR/EIS, Volume IV).

M3-17 As part of the environmental review process required by CEQA, a survey of paleontological resources was conducted of the project areas. The review included both a field survey and a literature search. Section 5.16 of the Final EIR/EIS, Volume I, provides a discussion of the results of the paleontological review.

M3-18 Projects that still have remaining significant adverse impacts after mitigation are allowed to proceed if the approving agency recognizes these effects would occur and determines that there are overriding considerations to approve the project despite these impacts. In such cases, under CEQA, such agencies must adopt a Statement of Overriding Considerations in conjunction with project approval. Under NEPA, the Record of Decision(s) must reflect these considerations as part of the decision making process.

M3-19 These comments do not raise issues under CEQA or NEPA and, therefore, no response is required.

M3-20 The determination regarding project approval will be made by the Board of Directors of the Metropolitan Water District of Southern California and the Bureau of Land Management upon completion of the Final EIR/EIS.

M3-21 Procedures for administrative protests of the BLM decision on the California Desert Conservation Plan amendment are set forth in 43 CFR 1610.5-2. Procedures for administrative appeals of the BLM decision on the right-of-way grant(s) are set forth in 43 CFR 4.

There are no administrative protest or appeal procedures for Metropolitan's action on the project. After the posting of the Notice of Determination on the Final EIR, CEQA allows a 30-day challenge period. A party seeking to challenge an action under CEQA may file a petition for writ of mandate, requesting that the court issue an order requiring the lead agency correct a perceived CEQA violation.

M3-22 These comments do not raise issues under CEQA or NEPA and, therefore, no response is required.

M3-23 These comments do not raise issues under CEQA or NEPA and, therefore, no response is required.

M3-24 Public comments were solicited during the scoping/Notice of Preparation (NOP) phase of the environmental process. That part of the process is intended to solicit input from responsible agencies, other agencies and members of the general public regarding what issues should be addressed in an environmental document. Section 1.5 (Background to the EIR/EIS) of the Final EIR/EIS, Volume I, summarizes the public scoping process during the NOP phase and the types of input received regarding issues which should be addressed in the EIR/EIS. The Draft Environmental Impact Report/Draft Environmental Impact Statement Public Participation Report (Report No. 1161), November 1999) provides a detailed summary of all public comments received at the NOP public scoping meetings, including the meeting held in Needles on May 10, 1999.

While the Draft EIR/EIS was being prepared, a number of public information meetings regarding this proposed project were held throughout the project area. CEQA and NEPA do not require the inclusion of comments from informational meetings to be included in a Draft EIR/EIS. However, it should be noted that the questions and comments at those information meetings were similar to the questions and comments provided in the earlier Scoping Meetings and in written comments in response to the NOP.

As part of the circulation of the Draft EIR/EIS for public review and comment, two public hearings, in addition to the hearing at Needles, were held, as described elsewhere in these Responses to Comments. The transcripts from all three Public Hearings are included in these Responses to Comments.

M3-25 Notices of Public Scoping Meetings were transmitted to approximately 12 newspapers in the project area. Not all the local papers elected to print this notice. For additional information refer to the Draft Environmental Impact Report/Draft Environmental Impact Statement Public Participation Report (Report No. 1161), November 1999, which provides documentation on the public information and participation program conducted for the Notice of Preparation phase of the environmental document in early 1999.

M3-26 These comments do not raise issues under CEQA or NEPA and, therefore, no response is required.

M3-27 See Response to Comment G2-4.

M3-28 No water will be taken from Ward Valley under this project .

M3-29 Under the terms of Metropolitan's water service contract with the Bureau of Reclamation, the United States delivered Colorado River water to Metropolitan for twenty-five cents ($0.25) per acre-foot, during the cost repayment period for Hoover Dam, which has since expired.

M4 RESPONSES TO COMMENTS RECEIVED AT THE THREE PUBLIC SCOPING MEETINGS

M4-1 See Response to Comments M2-17 and M2-18.

M4-2 See Master Response "Groundwater Monitoring and Management Plan." The amount of indigenous groundwater that would be withdrawn for the project would be governed by the Management Plan (Final EIR/EIS, Volume IV).

APPENDIX A

NOTICES PUBLISHED FOR THE DRAFT EIR/EIS

1. November 23, 1999. Notice of Completion of Draft EIR and Document Transmittal to State Clearinghouse

2. San Bernardino Sun, November 30, 1999. Notice of Availability of Draft EIR/EIS and notification of three public hearings

3. The Needles Desert Star, December 1, 1999. Notice of Availability of Draft EIR/EIS and notification of three public hearings

4. Federal Register, November 26, 1999. EPA Draft EIS Notice of Availability, Amendment of CDCA Plan and right-of-way grants and permits

5. Federal Register, December 7, 1999. BLM Notice of Availability of Draft EIS for right-of-way and plan Amendment

6. Federal Register, February 22, 2000. BLM Notice of Extension of Comment Period for Draft EIR/EIS

7. San Bernardino Sun, February 22, 2000. Notice of Extension of Comment Period for Draft EIR/EIS

8. The Needles Desert Star, February 23, 2000. Notice of Extension of Comment Period for Draft EIR/EIS

Form A

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, PO Box 3044, Sacramento, CA 95812-3044 916/445-0613

SCH # 99021039

Project Title: Cadiz Groundwater Storage and Dry-Year Supply Program

Lead Agency: Metropolitan Water District of So. Calif. Contact Person: Jack Safely

Street Address: P.O. Box 54153 Phone: (213) 217-6581

City: Los Angeles Zip: 90054-0153 County: Los Angeles

Project Location:

County: San Bernardino City/Nearest Community: Cadiz

Cross Streets: Route 66 & Cadiz Road Zip Code: _____ Total Acres: 1,280

Assessor's Parcel No. _____ Section: see attached Twp. _____ Range: _____ Base: _____

Within 2 Miles: State Hwy #: Route 66 Waterways: Schuler, Washington

Airports: _____ Railways: BNSF & ARZC Schools: _____

RECEIVED
NOV 24 1999
STATE CLEARINGHOUSE

Document Type:

CEQA: ☐ NOP ☐ Supplement/Subsequent EIR (Prior SCH No.)_____ NEPA: ☐ NOI Other: ☒ Joint Document
☐ Early Cons ☐ Other _____ ☐ EA ☐ Final Document
☐ Neg Dec ☒ Draft EIS ☐ Other _____
☒ Draft EIR ☐ FONSI

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☒ Other Project approval by MWD

Development Type:

☐ Residential: *Units*_____ *Acres*_____
☐ Office: *Sq.ft.*_____ *Acres*_____ *Employees*_____
☐ Commercial: *Sq.ft.*_____ *Acres*_____ *Employees*_____
☐ Industrial: *Sq.ft.*_____ *Acres*_____ *Employees*_____
☐ Educational _____
☐ Recreational _____

☒ Water Facilities: *Type* conveyance storage ~~XXXX~~ *MGD* 250 cfs
☐ Transportation: *Type* _____
☐ Mining: *Mineral* _____
☐ Power: *Type* _____ *Watts* _____
☐ Waste Treatment: *Type* _____
☐ Hazardous Waste: *Type* _____
☐ Other: _____

Funding (approx.): Federal $_____ State $_____ Total $ 150 million

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☐ Flood Plain/Flooding ☐ Schools/Universities ☒ Water Quality
☒ Agricultural Land ☐ Forest Land/Fire Hazard ☐ Septic Systems ☒ Water Supply/Groundwater
☒ Air Quality ☒ Geologic/Seismic ☐ Sewer Capacity ☐ Wetland/Riparian
☒ Archeological/Historical ☒ Minerals ☒ Soil Erosion/Compaction/Grading ☒ Wildlife
☐ Coastal Zone ☒ Noise ☐ Solid Waste ☒ Growth Inducing
☒ Drainage/Absorption ☐ Population/Housing Balance ☒ Toxic/Hazardous ☒ Landuse
☐ Economic/Jobs ☒ Public Services/Facilities ☒ Traffic/Circulation ☒ Cumulative Effects
☐ Fiscal ☒ Recreation/Parks ☒ Vegetation ☐ Other _____

Present Land Use/Zoning/General Plan Designation:

Agriculture and Resource Conservation

Project Description:

The project involves construction, operation, and maintenance of facilities to convey, store, and withdraw Project water into and from the Cadiz/Fenner groundwater basin in the eastern Mojave Desert region of San Bernardino County. Major facilities include a pumping plant, pipeline, spreading basins, wellfield and power distribution.

Revised 3-31-99

Reviewing Agencies Checklist

Form A, continued

KEY
S = Document sent by lead agency
X = Document sent by SCH
✓ = Suggested distribution

S **Resources Agency**
_____Boating & Waterways
_____Coastal Commission
_____Coastal Conservancy
S Colorado River Board
S Conservation
S Fish & Game
_____Forestry & Fire Protection
S Office of Historic Preservation
S Parks & Recreation
_____Reclamation Board
_____S.F. Bay Conservation & Development Commission
S Water Resources (DWR)

Business, Transportation & Housing
_____Aeronautics
_____California Highway Patrol
S CALTRANS District # 8
_____Department of Transportation Planning (headquarters)
_____Housing & Community Development

_____**Food & Agriculture**

Health & Welfare
_____Health Services _____

State & Consumer Services
_____General Services
_____OLA (Schools)

Environmental Protection Agency
S Air Resources Board
S California Waste Management Board
_____SWRCB: Clean Water Grants
_____SWRCB: Delta Unit
S SWRCB: Water Quality
_____SWRCB: Water Rights
S Regional WQCB # _____ (Colorado River Ba

Youth & Adult Corrections
_____Corrections

Independent Commissions & Offices
_____Energy Commission
_____Native American Heritage Commission
_____Public Utilities Commission
_____Santa Monica Mountains Conservancy
_____State Lands Commission
_____Tahoe Regional Planning Agency

_____Other _____

Public Review Period (to be filled in by lead agency)

Starting Date November 26, 1999 Ending Date February 22, 2000

Signature Rich W Reed Date Nov 23, 1999

Lead Agency (Complete if applicable):
Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: (____) _____

Applicant: _____
Address: _____
City/State/Zip: _____
Phone: (____) _____

For SCH Use Only:
Date Received at SCH _____
Date Review Starts _____
Date to Agencies _____
Date to SCH _____
Clearance Date _____
Notes:

THE SUN
399 North "D" Street
San Bernardino, CA 92401
(909) 397-3986

This space for filing stamp only

7

KATHLEEN M. KUNYSZ
METROPOLITAN WATER DISTRICT
P.O. BOX 54153
LOS ANGELES CA 90054

Proof of Publication

(2015.5 C.C.P.)

DIZ GROUNDWATER STORAGE

a citizen of the United States, over the age of eighteen
s, and not a party to or interested in the above entitled
ter. I am the representative of the printer and publisher
he Sun, a daily newspaper printed and published in the
ish language in the City of San Bernardino, County of
Bernardino, and adjudged a newspaper of general
ulation as defined by the laws of the State of California
he Superior Court of the County of San Bernardino,
e of California, under date of June 20, 1952, Case No.
84. That the notice, of which the annexed is a printed
y, has been published in each regular and entire issue of
newspaper and not in any supplement thereof on the
wing dates, to-wit:

/30/99

EXECUTED ON : 11/28/99
AT RIVERSIDE, CALIFORNIA

rtify (or declare) under penalty of perjury that the
going is true and correct.

.....
Signature

CNS1752962

NOTICE OF AVAILABILITY
Draft Environmental Impact Report/Environmental Impact Statement For the Cadiz Groundwater Storage and Dry-Year Supply Program

The is to inform all interested persons that pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), the Metropolitan Water District of Southern California (Metropolitan) and the U.S. Department of Interior Bureau of Land Management (BLM) have jointly prepared a Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the proposed Cadiz Groundwater Storage and Dry-Year Supply Program. Metropolitan is the Lead Agency under CEQA, and the BLM is the Lead Agency under NEPA.

The Draft EIR/EIS evaluates a range of alternatives for conveying water between the Colorado River Aqueduct and the aquifer underlying the Cadiz and Fenner Valleys. The aim of the Cadiz Project is to ensure the reliability of Metropolitan's existing water supply in the Colorado River Aqueduct. The project achieves this goal by storing Colorado River water in the Cadiz/Fenner aquifer and withdrawing the stored water along with indigenous groundwater during dry years. Proposed facilities reviewed in the Draft EIR/EIS are a pipeline or canal for conveying water between the Colorado River Aqueduct and the Cadiz/Fenner area, a pumping plant, spreading basins for percolation of Colorado River water into the aquifer in the Cadiz/Fenner area, a wellfield for extracting Project water from the Cadiz/Fenner aquifer, and associated power poles and lines along the conveyance pipeline and in the wellfield.

The project area is located in the eastern Mojave Desert region of San Bernardino County in the Cadiz and Fenner valleys and crosses federal land administered by the BLM. The BLM has determined that an EIS would be required as the proposed action includes an amendment of the California Desert Conservation Area (CDCA) Plan and right-of-way easements across federal lands.

The Draft EIR/EIS addresses existing environmental conditions, potential impacts, and proposed mitigation measures associated with the proposed project. The Draft EIR/EIS indicates the possibility of some significant adverse effects, even after the implementation of the mitigation measures identified in the Draft EIR/EIS, for the parameters of paleontological resources, air quality, and hazardous materials.

Copies of the Draft EIR/EIS and supporting technical reports will be available for public review from November 26, 1999, through February 22, 2000, at the following locations:

Needles Branch Library, 1111 Bailey Avenue, Needles, California 92363

Twentynine Palms Branch Library, 6078 Adobe Road, Twentynine Palms, California 92277

Barstow Branch Library, 304 East Buena Vista, Barstow, California 92311

San Bernardino County Public Library, 104 West 4th Street, San Bernardino, California 92415

Bureau of Land Management, Riverside Office, 6221 Box Spring Road, Riverside, California 92507

Bureau of Land Management, Needles Office, 101 West Spike's Road, Needles, California 92363

Metropolitan Water District of Southern California, 700 North Alameda Street, Los Angeles, California 90012

There will be three public hearings as follows:

Wednesday, December 15, 1999, at 11:00 A.M.
Cadiz Ranch
96-726 Highway 66
Cadiz, California 92319

Wednesday, December 15, 1999, at 7:00 P.M.
Twentynine Palms City Hall
6136 Adobe Road
Twentynine Palms, California 92277

Thursday, December 16, 1999 at 7:00 P.M.
Needles City Hall
1111 Bailey Avenue
Needles, California 92363

Written comments on the Draft EIR/EIS should be sent to:
Metropolitan Water District of Southern California
Post Office Box 54153
Los Angeles, California 90054-0153
Attention: Mr. Dirk Reed

To be considered, Metropolitan must receive comments on or before February 22, 2000.

Further information regarding the project may be obtained from Mr. Reed at (213) 217-6163 or Mr. Jack Safely at (213) 217-6981.

11/30/99

SBS- 69189#

DECLARATION of PUBLICATION
The Needles Desert Star

STATE OF CALIFORNIA ss.)
County of San Bernardino)

I Valerie Potter say
That I am over the age of eighteen and not interested in the above entitled (matter, estate, action or proceedings as the case may be); and I am now and at all time embraced in the publication herein mentioned was, the printer (or the foreman or principal clerk of the printer) of The Desert Star, a weekly newspaper printed, published and circulated in said county; that The Needles Desert Star
of which the annexed is a true printed copy, was published in the above named newspaper on the following dates, to wit...

December 1, 1999

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 12-01-99 at Needles, California.

Valerie A. Potter
Signature of Declarant

NOTICE OF AVAILABILITY

Draft Environmental Impact Report/Environmental Impact Statement For the Cadiz Groundwater Storage and Dry-Year Supply Program

The is to inform all interested persons that pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), the Metropolitan Water District of Southern California (Metropolitan) and the U.S. Department of Interior Bureau of Land Management (BLM) have jointly prepared a Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the proposed Cadiz Groundwater Storage and Dry-year Supply Program. Metropolitan is the Lead Agency under CEQA, and the BLM is the Lead Agency under NEPA.

The Draft EIR/EIS evaluates a range of alternatives for conveying water between the Colorado River Aqueduct and the aquifer underlying the Cadiz and Fenner Valleys. The aim of the Cadiz Project is to ensure the reliability of Metropolitan's existing water supply in the Colorado River Aqueduct. The Project achieves this goal by storing Colorado River water in the Cadiz/Fenner aquifer and withdrawing the stored water along with indigenous groundwater during dry years. Proposed facilities reviewed in the Draft EIR/EIS are a pipeline or canal for conveying water between the Colorado River Aqueduct and the Cadiz/Fenner area, a pumping plant, spreading basins for percolation of Colorado River water into the aquifer in the Cadiz/Fenner aquifer, and associated power poles and lines along the conveyance pipeline and in the wellfield.

The project area is located in the eastern Mojave Desert region of San Bernardino County in the Cadiz and Fenner valleys and crosses federal land administered by the BLM. The BLM has determined that an EIS would be required as the proposed action includes an amendment of the California Desert Conservation Area (CDCA) Plan and right-of-way casements across federal lands.

The Draft EIR/EIS addresses existing environmental conditions, potential impacts, and proposed mitigation measures associated with the proposed project. The Draft EIR/EIS indicates the possibility of some significant adverse effects, even after the implementation of the mitigation measures identified in the Draft EIR/EIS, for the parameters of paleontological resources, air quality, and hazardous materials.

Copies of the Draft EIR/EIS and supporting technical reports will be available for public review from November 26, 1999, through February 22, 2000, at the following locations:

Needles Branch Library
1111 Bailey Avenue
Needles, California 92363

Twentynine Palms Branch Library, 6078 Adobe Road
Twentynine Palms,
California 92277

Barstow Branch Library
304 East Buena Vista
Barstow, California 92311

Bureau of Land Management
Riverside Office
6221 Box Spring Road
Riverside, California 92507

San Bernardino County Public Library ,104 West 4th Street,
San Bernardino, California 92415

Bureau of Land Management
Needles Office
101 West Spikes's Road
Needles, California 92363

Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, California 90012

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Written comments on the Draft EIR/EIS should be sent to:

Metropolitan Water District of Southern California
Post Office Box 54153
Los Angeles, California 90054-0153
Attention: Mr. Dirk Reed.

To be considered, Metropolitan must receive comments on or before February 22, 2000. Further information regarding the project may be obtained from Mr. Reed at (213)217-6163 or Mr. Jack Safely at (213)217-6981.

Publish: December 1, 1999
12104109

Distribution Line, Powder River Basin, Campbell and Converse Counties, WY.

Summary: EPA continues to have environmental concerns with disposal of CBM produced water and potential formaldehyde emissions.

ERP No. F–COE–E39048–FL, Alligator Chain of Lakes and Lake Gentry Extreme Drawdown and Habitat Enhancement Project, Implement Aquatic Habitat Enhancement, Osceola County, FL.

Summary: EPA has no significant objections to the proposed drawdown of the Alligator Chain and Lake Gentry in order to promote fisheries production and recreational opportunities.

ERP No. F–FHW–E40088–MS, Airport Parkway/Mississippi 25 Connectors, Construction Beginning at Intersection of High Street/Interstate 55 (I–55), Ending at Mississippi 25, City of Jackson, Hinds and Rankin Counties, MS.

Summary: EPA continues to have environmental concerns regarding potential long-term adverse wetland impacts, the loss of flood storage capacity, and limitations in the mitigation plan. Unless additional mitigation is provided, EPA anticipates that the project may encounter considerable difficulty during the Section 404 permitting process.

ERP No. F–FHW–F40144–WI, WI–131 and WI–33 Transportation Improvement, Relocation and/or Reconstruction, between Village of Ontario and Community of Rockton, Funding and Possible COE 404 Permit, Vernon County, WI.

Summary: EPA expressed environmental concerns with the project's wetlands compensation plan which was not fully detailed within the FEIS.

ERP No. F–NPS–K61221–CA, Fort Baker Site, Golden Gate National Recreation Area, Comprehensive Management Plan, Implementation, Marin County, CA.

Summary: No formal comment letter was sent to the preparing agency.

Dated: November 22, 1999.

B. Katherine Biggs,

Associate Director, Office of Federal Activities.

[FR Doc. 99–30809 Filed 11–24–99; 8:45 am]

BILLING CODE 6560–50–U

ENVIRONMENTAL PROTECTION AGENCY

(ER–FRL–6248–4)

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7167 or www.epa.gov/oeca/ofa.

Weekly receipt of Environmental Impact Statements Filed November 15, 1999 Through November 19, 1999 Pursuant to 40 CFR 1506.9.

EIS No. 990435, Final EIS, NPS, WA, Lake Roosevelt National Recreation Area, General Management Plan, Implementation, Ferry, Grant, Lincoln, Okanogan and Stevens Counties, WA, Due: December 27, 1999, Contact: Vaugh Baker (509) 633–9441.

EIS No. 990436, Draft EIS, FAA, TX, George Bush Intercontinental Airport Houston, Construction and Operation, Runway 8L–26R and Associated Near Term Master Plan Project, City of Houston, Harris County, TX, Due: January 10, 1999, Contact: Ben R. Guttery (817) 222–5614.

EIS No. 990437, Draft EIS, NPS, KS, Tallgrass Prairie National Preserve General Management Plan, Implementation, Flint Hills Region, Chase County, KS, Due: January 25, 2000, Contact: Michael Madell (608) 264–5257.

EIS No. 990438, Draft EIS, BLM, WY, Pinedale Anticline Oil and Gas Exploration and Development Natural Gas Wells Project, Implementation, Sublette County, WY, Due: January 25, 2000, Contact: Jon Johnson (307) 775–6116.

EIS No. 990439, Final EIS, COE, AL, Jackson Port Project, Proposal for the Public Port Facilities on the Tombigbee River, City of Jackson, Clark County, AL, Due: December 27, 1999, Contact: Beverley Stout (334) 694–4637.

EIS No. 990440, Draft supplement, BLM, CA, Soledad Canyon Sand and Gravel Mining Project, Proposal to Mine, Produce and Sell, "Split Estate" Private Owned and Federally Owned Lands, Transit Mixed Concrete, Los Angeles County, CA, Due: January 10, 2000, Contact: Elena Misquez (760) 251–4810.

EIS No. 990441, Final EIS, FHW, WV, Coalfields Expressway Transportation Improvements, Funding, NPDES and COE Section 404 Permits, McDowell, Wyoming and Raleigh Counties, WV, Due: December 27, 1999, Contact: Thomas J. Smith (304) 347–5928.

EIS No. 990442, Final EIS, BIA, MT, Flathead Indian Reservation Forest Management Plan, Implementation, Rocky Mountain, Pablo, MT, Due: December 27, 1999, Contact: Donald R. Sutherland (202) 208–4791.

EIS No. 990443, Draft EIS, BLM, CA, Cadiz Groundwater Storage and Dry-Year Supply Program, Construction and Operation, Amendment of the California Desert Conservation Area (CDCA) Plan, Issuance of Right-of-Way Grants and Permits, San Bernardino County, CA, Due: February 22, 2000, Contact: James Williams (909) 697–5390.

EIS No. 990444, Draft EIS, NPS, AZ, Fort Bowie National Historic Site General Management Plan, Implementation, Cochise County, AZ, Due: January 30, 2000, Contact: Christine Maylath (303) 969–2851.

EIS No. 990445, Draft EIS, BLM, MT, SD, ND, Montana, North Dakota and Portions of South Dakota Off-Highway Vehicle and Plan Amendment, Implementation, MT, ND and SD, Due: February 24, 2000, Contact: Jerry Majerus (406) 538–1924. The U.S. Department of Interior's Bureau of Land Management and the U.S. Department of Agriculture's Forest Service are Joint Lead for this project.

Amended Notices

EIS No. 990374, Draft EIS, SFW, CA, Trinity River Mainstem Fishery Restoration, To Restore and Maintain the Natural Production of Anadromous Fish, Trinity and Humboldt Counties, CA, Due: December 06, 1999, Contact: Joe Polos (707) 822–7201.

Published FR 10–25–99—Review Period extended from 12–06–99 to 12–20–99.

Dated: November 22, 1999

B. Katherine Biggs,

Associate Director, Office of Federal Activities.

[FR Doc. 99–30810 Filed 11–24–99; 8:45 am]

BILLING CODE 6560–50–U

ENVIRONMENTAL PROTECTION AGENCY

[OPP–30484; FRL–6390–3]

Pesticide Product; Registration Applications

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: This notice announces receipt of applications to register pesticide products containing new active ingredients not included in any previously registered products pursuant

DATES: Submit comments on or before February 7, 2000.

ADDRESSES: Written comments can be sent to William Sinclair, Office of Self-Governance, 1849 C Street, NW, Mail Stop 2542 MIB, Washington, DC 20240.

FOR FURTHER INFORMATION CONTACT: William Sinclair, (202) 219–0240.

SUPPLEMENTARY INFORMATION: The Self-Governance program was authorized by the Tribal Self-Governance Act of 1994, Pub. L. 103–413 as amended. Tribal Self-Governance is a voluntary program that is currently active and operating without promulgated regulations. [See § 407(d) of the Act which says that lack of promulgated regulations shall not limit the effect of this title.] Previously, an information collection request was cleared by the Office of Information and Regulatory Affairs, Office of Management and Budget of the Act. That clearance expires on February 29, 2000. Tribes interested in entering into Self-Governance must submit certain information to support their admission into Self-Governance. In addition, those tribes and tribal consortia who have entered into self-governance compacts must submit certain information to justify budget requests on their behalf and to comport with section 405 of the Act that calls for the Secretary to submit an annual report to the Congress. Information is also required of tribes to ensure that the trust responsibilities of the Secretary of the Interior are safeguarded and that imminent jeopardy to trust assets is avoided. (See section 403(d) of the Act.)

You are advised that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information that does not display a valid OMB clearance number. For example, this collection is listed by OMB as 1076–0143, and it expires February 29, 2000. The response is voluntary or to obtain or retain a benefit, depending upon the parts of the program being addressed.

We are requesting comments about the proposed collection to evaluate:

(a) The accuracy of the burden hours, including the validity of the methodology used and assumptions made,

(b) The necessity of the information for proper performance of the bureau functions, including its practical utility,

(c) The quality, utility, and clarity of the information to be collected, and

(d) Suggestions to reduce the burden including use of automated, electronic, mechanical, or other forms of information technology.

Please submit your comments to the person listed in the **ADDRESSES** section. Please note that comments, names and addresses of commentators, are open for public review during regular business hours. If you wish your name and address withheld, you must state this prominently at the beginning of your comments. We will honor your request to the extent allowable by law.

Type of review: Renewal.

Title: Tribal Self-Governance Program.

Affected Entities: Tribes and tribal consortiums currently in Self-Governance or wishing to enter into a self-governance compact.

Size of Respondent Pool: 85.

Number of Annual Responses: 257.

Hours per response: 42 hours.

Total burden hours: 10,766 hours.

BIA Information Collection Clearance Officer: Ruth Bajema, 202–208–2574.

Dated: December 1, 1999.

Kevin Gover,

Assistant Secretary—Indian Affairs.

[FR Doc. 99–31567 Filed 12–6–99; 8:45 am]

BILLING CODE 4310–02–P

DEPARTMENT OF INTERIOR

Bureau of Land Management

[CA–690–00–5101–01–B109; CACA–CACA–40467]

Proposed Cadiz Groundwater Storage Dry—Year Supply Program, Pipeline Right of Way and Plan Amendment

AGENCY: Bureau of Land Management, Department of the Interior, Needles Field Office, Desert District, California.

ACTION: Notice of availability of draft environmental impact statement for proposed cadiz groundwater storage and dry—year supply program pipeline right-of-way and plan amendment.

SUMMARY: In compliance with the National Environmental Policy Act of 1969, notice is hereby given that the Bureau of Land Management has prepared a joint draft Environmental Impact Statement (EIS) and Environmental Impact Record (EIR) in conjunction with the Metropolitan Water District (MWD). The draft EIR/EIS evaluates a range of alternatives for conveying water between the Colorado River Aqueduct and the aquifer underlying the Cadiz and Fenner Valleys across a proposed right-of-way for a pipeline. A plan amendment to the California Desert Conservation Area Plan (1980) is also proposed to allow for the proposed right-of-way.

The aim of the Cadiz Project is to ensure the reliability of Metropolitan's existing water supply in the Colorado River Aqueduct. The project achieves this goal by storing Colorado River water in the Cadiz/Fenner aquifer and withdrawing the stored indigenous groundwater during dry years. Proposed facilities reviewed in the Draft EIR/EIS are a pipeline or canal for conveying water between the Colorado River Aqueduct and the Cadiz/Fenner area, a pumping plant, spreading basins for percolation of Colorado River water into the groundwater basin in the Cadiz/Fenner area, a well field for extracting stored and indigenous groundwater from the Cadiz/Fenner groundwater basin, and associated power poles and lines along the conveyance pipeline and in the well field. The project area is located in the eastern Mojave Desert region of San Bernardino County in the Cadiz and Fenner valleys. The proposed action includes an amendment of the California Desert Conservation Area (CDCA) Plan, because the propose right-of-way across federal lands is outside an utility corridor.

The Draft EIR/EIS addresses existing environmental conditions, potential impacts, and proposed mitigation measures. The Draft EIR/EIS indicates the possibility of some significant adverse effects, even after the implementation of the mitigation measures for the parameters of paleontological resources, air quality, and hazardous materials.

SUPPLEMENTARY INFORMATION: Copies of the draft EIR/EIS and supporting technical reports will be available for 90-day public review from November 26, 1999 through February 22, 2000 at the following locations:

Needles Branch Library, 1111 Bailey Avenue, Needles, California 92363

Twentynine Palms Branch Library, 6078 Adobe Road, Twentynine Palms, California 92277

Barstow Branch Library, 304 East Buena Vista, Barstow, California 92311

San Bernardino County Public Library, 104 West 4th Street, San Bernardino, California 92415

Bureau of Land Management, Riverside Office, 6221 Box Spring Road, Riverside, California 92507

Bureau of Land Management, Needles Office, 101 West Spike's Road, Needles, California 92363

Metropolitan Water District of Southern California, 700 North Alameda Street, Los Angeles, California 90012

There will be three public hearings as follows:

Wednesday, December 15, 1999, at 11 am

Cadiz Ranch, 96–726 Highway 66, Cadiz, California 92319

Wednesday, December 15, 1999, at 7 pm

Twentynine Palms City Hall, 6136

presence or absence surveys throughout its range for the purpose of enhancing its survival.

Permit No. TE–022230

Applicant: Jeff Kidd, Laguna Niguel, California.

The applicant requests a permit to take (survey by pursuit) the Quino checkerspot butterfly (*Euphydryas editha quino*) in conjunction with presence or absence surveys and take (capture, handle, and release) the arroyo southwestern toad (*Bufo microscaphus californicus*) for scientific studies throughout their range for the purpose of enhancing their survival.

Permit No. TE–009066

Applicant: Thomas Alan Benson, Buena Park, California.

The applicant requests a permit to take (survey by pursuit) the Quino checkerspot butterfly (*Euphydryas editha quino*) in conjunction with presence or absence surveys throughout its range for the purpose of enhancing its survival.

Permit No. TE–702631

Applicant: Assistant Regional Director-Ecological Services, Region 1, U.S. Fish and Wildlife Service, Portland, Oregon.

The permittee requests a permit amendment to remove and reduce to possession specimens of the following plant species: *Erigeron decumbens var. decumbens* (Willamette daisy), *Plagiobothrys hirtus* (rough popcornflower), *Delphinium bakeri* (Baker's larkspur), *Delphinium luteum* (yellow larkspur), and *Phlox hirsuta* (Yreka phlox). Authorization is also requested to take the following species: the Fender's blue butterfly (*Icaricia icarioides fenderi*) and the Blackburn's sphinx moth (*Manduca blackburni*). Collection and take activities will be conducted throughout the species range in conjunction with recovery efforts for the purpose of enhancing their propagation and survival.

Permit No. TE–799558

Applicant: Idaho Power Company, Boise, Idaho.

The permittee requests a permit amendment to extend the geographic area authorized to take (survey and collect voucher speciemens) the Banbury Springs limpet (*Lanx undescribed species*), Bliss Rapids snail (*Taylorconcha serpenticola*), Idaho springsnail (*Pyrgulopsis idahoensis*), Snake River physa snail (*Physa natricina*), and the Utah valvata snail (*Valvata utahensis*), to include throughout the species range in conjunction with ecological research for the purpose of enhancing their survival.

Permit No. TE–798003–1

Applicant: North State Resources, Redding, California.

The applicant requests a permit amendment to take (harass by survey, collect, and sacrifice) the San Diego fairy shrimp (*Brachinecta sandiegonensis*) throughout its range in California, in conjunction with surveys for the purpose of enhancing their survival.

Permit No. TE–022686

Applicant: David Mayer, San Diego, California.

The applicant requests a permit to take (harass by survey) the southwestern willow flycatcher (Empidonax traillii extimus); take (harass by pursuit) the Quino checkerspot butterfly (Euphydryas editha quino); and take (harass by survey, collect, and sacrifice) the Conservancy fairy shrimp (Branchinecta conservatio), longhorn fairy shrimp (Branchinecta longiantenna), Riverside fairy shrimp (Streptocephalus woottoni), San Diego fairy shrimp (Branchinecta sandiegonensis), and the vernal pool tadpole shrimp (Lepidurus packardi) throughout the species range in conjunction with surveys for the purpose of enhancing their survival.

DATES: Written comments on these permit applications must be received on or before March 23, 2000.

ADDRESSES: Written data or comments should be submitted to the Chief—Endangered Species, Ecological Services, Fish and Wildlife Service, 911 N.E. 11th Avenue, Portland, Oregon 97232–4181; Fax: (503) 231–6243. Please refer to the respective permit number for each application when submitting comments. All comments received, including names and addresses, will become part of the official administrative record and may be made available to the public.

FOR FURTHER INFORMATION CONTACT: Documents and other information submitted with these applications are available for review, subject to the requirements of the Privacy Act and Freedom of Information Act, by any party who submits a written request for a copy of such documents within 20 days of the date of publication of this notice to the address above; telephone: (503) 231–2063. Please refer to the respective permit number for each application when requesting copies of documents.

Dated: February 11, 2000.

Anne Badgley,

Regional Director, Region 1, Portland, Oregon.

[FR Doc. 00–4067 Filed 2–18–00; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[CA–690–00–5101–01–B109; CACA–CACA–40467]

Proposed Cadiz Groundwater Storage Dry-Year Supply Program, Pipeline Right of Way and Plan Amendment

AGENCY: Bureau of Land Management, Needles Field Office, Desert District, California Department of the Interior.

ACTION: Notice of extension of comment period for draft environmental impact statement for proposed Cadiz groundwater storage and dry-year supply program pipeline right-of-way and plan amendment.

SUMMARY: In a Notice of Availability published in the **Federal Register** November 26, 1999 (Volume 64, page 66474) the end of the public comment period was February 22, 2000. However, public interest has indicated a need to extend the public review.

DATES: Written comments must be received in writing to the Metropolitan Water District no later than March 8, 2000.

ADDRESSES: Written comments on the Draft EIR/EIS should be mailed to: Metropolitan Water District of Southern California, Post Office Box 54153, Los Angeles, California 90054–0153, Attention: Mr. Jack Safely.

FOR ADDITIONAL INFORMATION CONTACT: Further information regarding the project may be obtained from Mr. Jack Safely of MWD at (213) 217–6981 or James Williams of BLM at (909) 697–5390.

Dated: February 14, 2000.

Douglas Romoli,

Acting District Manager.

[FR Doc. 00–4069 Filed 2–18–00; 8:45 am]

BILLING CODE 4310–40–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

(UT–941–1420–00–241A)

Survey Plat Filings: Utah

AGENCY: Bureau of Land Management.

ACTION: Notice of filing cadastral survey township plats.

THE SUN
399 North "D" Street
San Bernardino, CA 92401
(909) 397-3986

This space for filing stamp only

8

KATHLEEN M. KUNYSZ
METRO WATER
P.O. BOX 54153
LOS ANGELES CA 90054

CNS1766024

Proof of Publication

(2015.5 C.C.P.)

EXTENSION OF COMMENT PERIOD CA

NOTICE OF EXTENSION OF COMMENT PERIOD
Draft Environmental Impact Report/Environmental Impact Statement For the Cadiz Groundwater Storage and Dry-Year Supply Program
This notice is to inform all interested persons that the public comment period for the Draft Environmental Impact Report/Environmental Impact Statement for the Cadiz Groundwater Storage and Dry-Year Supply Program will be extended. The November 1999 Notice of Availability established the end of the comment period as February 22, 2000. However, public interest has indicated a need to extend the public comment period through March 8, 2000. Written comments on the Draft EIR/EIS should be mailed to:
Metropolitan Water District of Southern California
Post Office Box 54153
Los Angeles, California 90054-0153
Attention: Mr. Jack Safely
To be considered, Metropolitan must receive comments on or before March 8, 2000.
Further information regarding the project may be obtained from Mr. Safely at (213) 217-6981.
02/22/00

SBS-92666#

here)

I am a citizen of the United States, over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the representative of the printer and publisher of The Sun, a daily newspaper printed and published in the English language in the City of San Bernardino, County of San Bernardino, and adjudged a newspaper of general circulation as defined by the laws of the State of California by the Superior Court of the County of San Bernardino, State of California, under date of June 20, 1952, Case No. 73084. That the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

02/22/00

EXECUTED ON : 02/22/00
AT RIVERSIDE, CALIFORNIA

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

.....
Signature

DECLARATION of PUBLICATION
The Needles Desert Star

STATE OF CALIFORNIA
County of San Bernardino ss.

I Valerie Potter say
That I am over the age of eighteen and not interested in the above entitled (matter, estate, action or proceedings as the case may be); and I am now and at all time embraced in the publication herein mentioned was, the printer (or the foreman or principal clerk of the printer) of The Desert Star, a weekly newspaper printed, published and circulated in said county; that The Needles Desert Star of which the annexed is a true printed copy, was published in the above named newspaper on the following dates, to wit...

February 23, 2000

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 2-28-00 at Needles, California.

Valerie A Potter
Signature of Declarant

NOTICE OF EXTENSION COMMENT PERIOD

Draft Enviormental Impac
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For the Cadiz Groundwa
Storage and Dry-Year Su
Program

This notice is to inform a
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extended. The Novem
1999 Notice of Availability
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2000. However, public int
has indicated a need to
tend the public comment
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Written comments on
Draft EIR/EIS should
mailed to:

Metropolitan Water Distri
Southern California
Post Office Box 54153
Los Angeles, Califor
90054-0153
Attention: Mr. Jack Safely

To be considered, Metrop
tan must receive comme
on or before March 8, 2000
Further information regar
the project may be obtai
from Mr. Safely at (213)2
6981.

Publish February 23, 2000
12104356

ORS 176602

APPENDIX B

Q&A

THE CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM

hat Is The Cadiz Groundwater Storage nd Dry-Year Supply Program?

The Cadiz Groundwater Storage and Dry-Year Supply Program adiz Program) is a cooperative program between the Metropolitan ter District of Southern California (Metropolitan) and Cadiz Inc. anz). This important agriculture/urban partnership is designed to p Southern California meet its current and future water supply ds through better management of Metropolitan's Colorado River ources.

The 50-year Cadiz Program will improve Southern California er supply reliability in two ways:

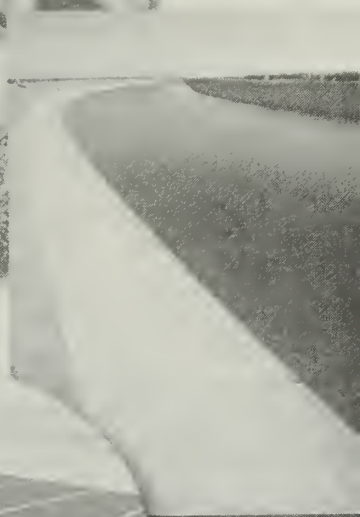
Storage - Store Colorado River water to better manage available wet-year supplies to meet dry-year needs.

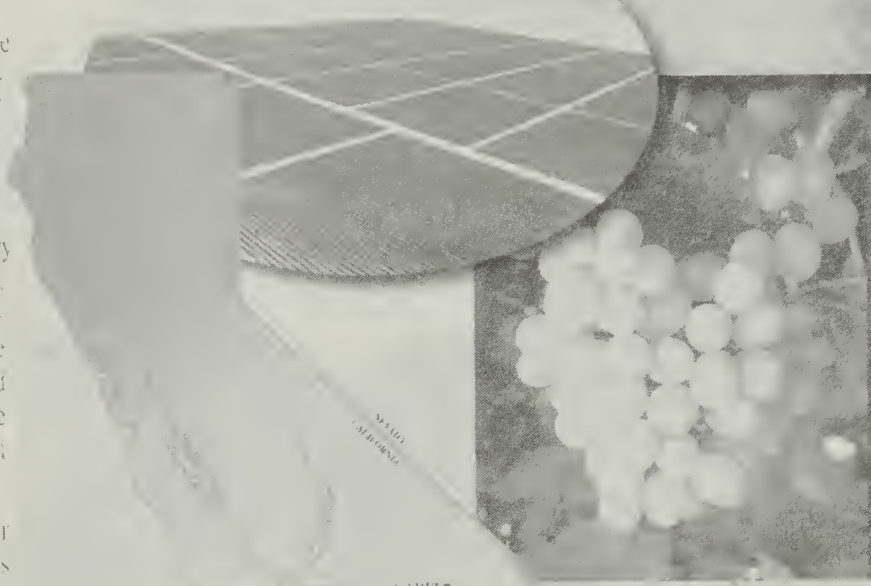
Supply - Provide a new dry-year supply from the high-quality groundwater underlying the Cadiz property.

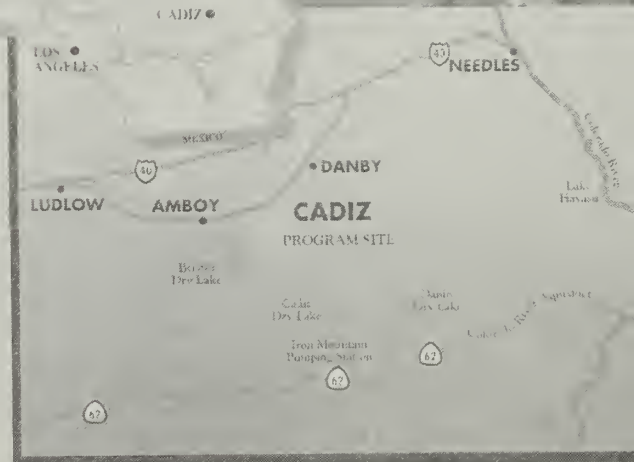
The Cadiz Program is designed to take wet-year water available the Colorado River and deliver it to the Cadiz property for stor- in the underlying aquifer system. Up to one million acre-feet of plus Colorado River water will be stored at any one time. ring dry years, this water will be withdrawn from storage and ivered to Metropolitan's service area. In addition, a portion of existing groundwater that normally evaporates from adjacent dry es will also be made available to Metropolitan during dry years. pproximately one to two million acre-feet of high-quality ground- ter will be provided to Metropolitan over the 50-year term of the reement. The actual amount of water to be stored and transferred ll be governed by the restrictions and conditions of the oundwater Monitoring and Management Plan and by the amount natural recharge to the aquifer system.

Cadiz owns more than 27,000 acres in the Cadiz and Fenner lleys in eastern San Bernardino County, approximately 35 miles rth of Metropolitan's Colorado River aqueduct. The Program's pital facilities will be located entirely on Cadiz property. Studies independent experts have determined that the Program site over- s an aquifer system, which is ideally suited for underground water rage. The watershed that supplies water to the Program site compasses approximately 1,300 square miles, or an area larger an the state of Rhode Island. The aquifer system contains approx- ately 20 million acre-feet of high-quality groundwater, which is plenished naturally through rainfall at a rate of approximately ,000 acre-feet per year. An acre-foot of water contains approxi- ately 326,000 gallons and is sufficient to meet the needs of two uthern California families for a year.









The Cadiz Groundwater Storage and Dry-Year Supply Program takes advantage of the proximity of the Cadiz aquifer system to the Colorado River Aqueduct, approximately 35 miles away.



Why Is The Program Needed?

A reliable, high-quality and affordable water supply is vital to Southern California. At present, supplies are adequate during normal rainfall years, but fall short during dry periods.

Water agencies in California need to better manage available water resources in order to maintain water supplies in dry years. Metropolitan's water conservation and recycling programs are one part of the solution, but alone cannot meet the needs of the region. The voluntary transfer of conserved agricultural water to urban areas and the beneficial use of groundwater basins for water storage are two additional options available to meet the state's needs.

Southern California's challenge in managing its water resources is made more difficult by the fact that it is an arid region, which is largely dependent on water supplies imported from other areas. The Cadiz Program helps provide a Southern California solution to Southern California's growing water supply needs.



How Would The Program Work?

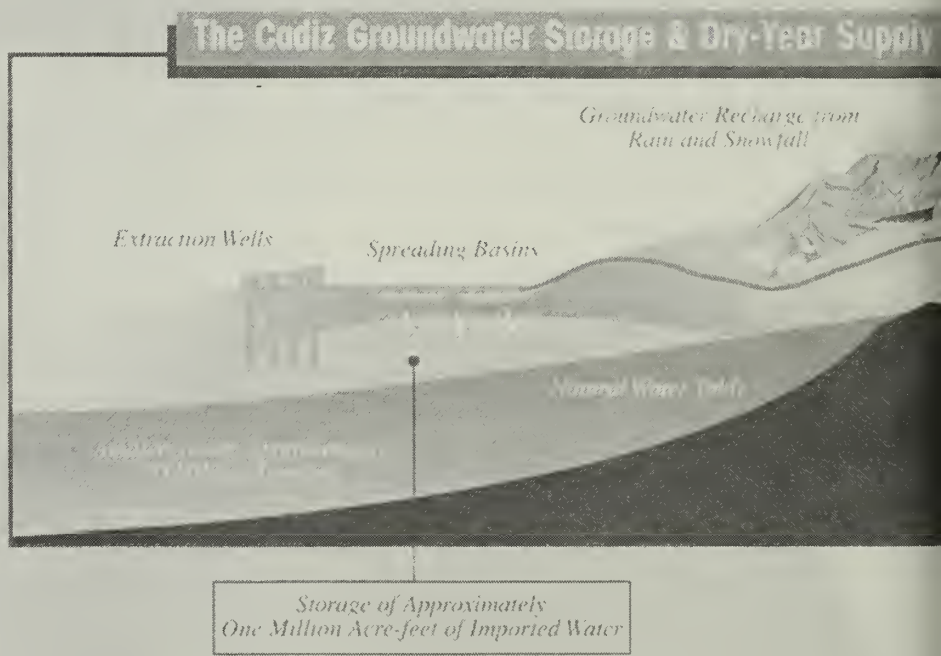
Storage Operations

During storage operations, surplus Colorado River water will be conveyed from Metropolitan's Colorado River Aqueduct, via a new water conveyance pipeline, to spreading basins that will be constructed on the Cadiz property. From these spreading basins, the water will percolate into the underlying aquifer system for storage.

Supply Operations

When needed, the stored Colorado River water and indigenous groundwater will be pumped from wells and returned to the Colorado River Aqueduct, via the transmission pipeline, for ultimate delivery to Southern California residents and businesses.

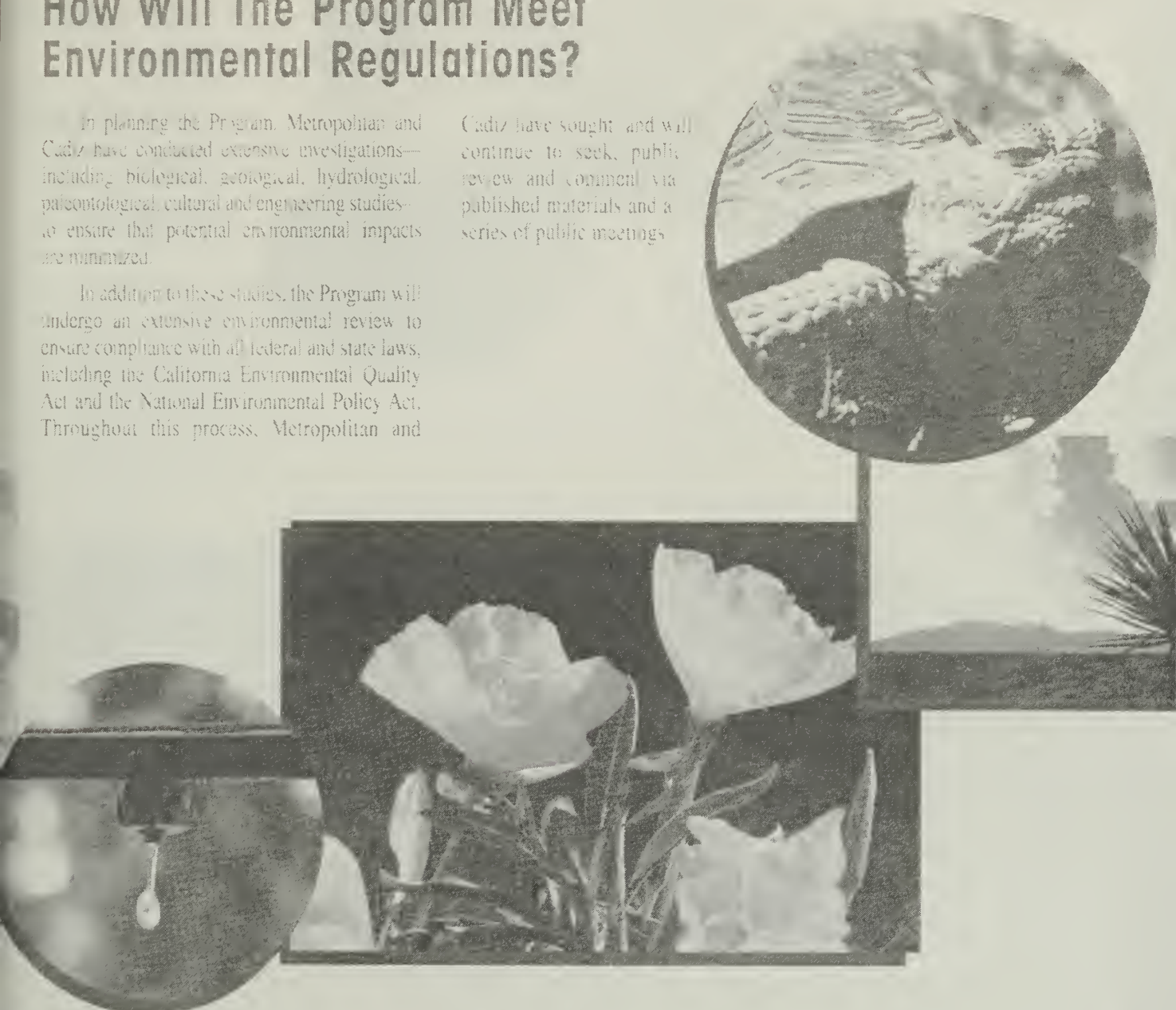
The pumping plant, wellfield and water conveyance pipeline will be sized to convey up to 150,000 acre-feet of water in any given year of the Program.

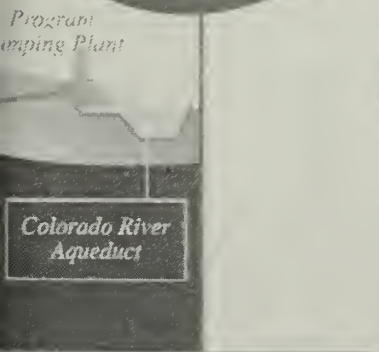


How Will The Program Meet Environmental Regulations?

In planning the Program, Metropolitan and Cadiz have conducted extensive investigations—including biological, geological, hydrological, paleontological, cultural and engineering studies—to ensure that potential environmental impacts are minimized.

In addition to these studies, the Program will undergo an extensive environmental review to ensure compliance with all federal and state laws, including the California Environmental Quality Act and the National Environmental Policy Act. Throughout this process, Metropolitan and Cadiz have sought and will continue to seek, public review and comment via published materials and a series of public meetings.







What Are The Program Benefits?

The Program will provide numerous benefits to the people and businesses of the state of California, including:

Improved Reliability: Water supply reliability will be improved by providing much-needed water storage capacity and by augmenting existing Colorado River resources.

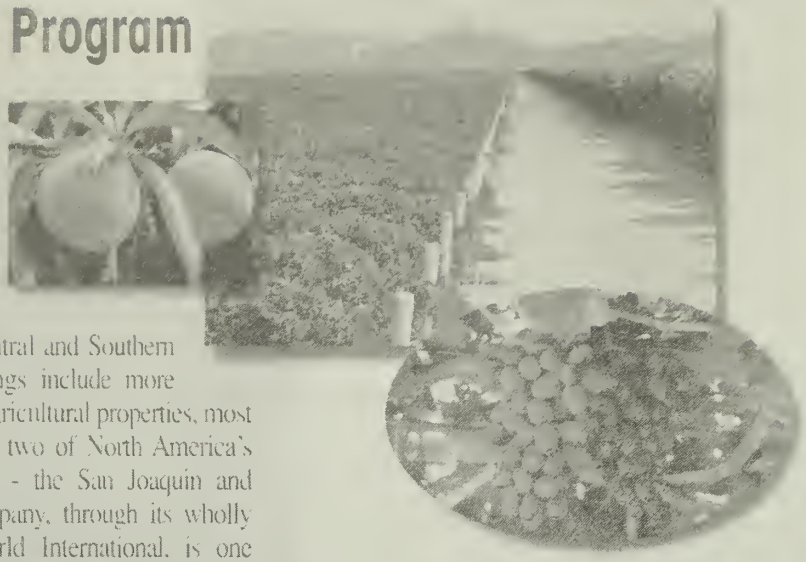
Environmentally Sensible: Underground water storage has less environmental impact than traditional surface reservoirs and dams. The Program will also help relieve pressure on the stressed Sacramento/San Joaquin Bay-Delta ecosystem by reducing reliance on Northern California water supplies during dry years.

Water Quality: Imported Colorado River water quality will be improved.

Jobs and Revenue: Local jobs will be created during construction and approximately $100 million will be invested in the San Bernardino County economy. The Program would also provide significant long-term economic benefits to Southern California's business community through increased water supply, reliability, and quality.

Who Are The Program Partners?

Who is Cadiz Inc.?

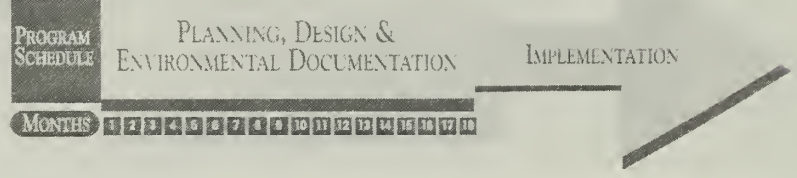


Founded in 1983, Cadiz Inc. is a publicly held agricultural firm that currently owns more than 58,000 acres throughout Central and Southern California. These landholdings include more than 21,000 acres of prime agricultural properties, most of which are located within two of North America's premier agricultural regions - the San Joaquin and Coachella valleys. The company, through its wholly owned subsidiary, Sun World International, is one of California's leading vertically integrated agricultural firms and is one of the nation's largest growers and marketers of table grapes, stone fruit, and specialty crops.

Cadiz also owns approximately 37,000 acres of largely undeveloped land in the eastern Mojave Desert. The majority of this land is located in the Cadiz and Fenner valleys of eastern San Bernardino County. These landholdings overlie underground aquifer systems well suited for innovative water storage and supply programs.

Public Information & Outreach

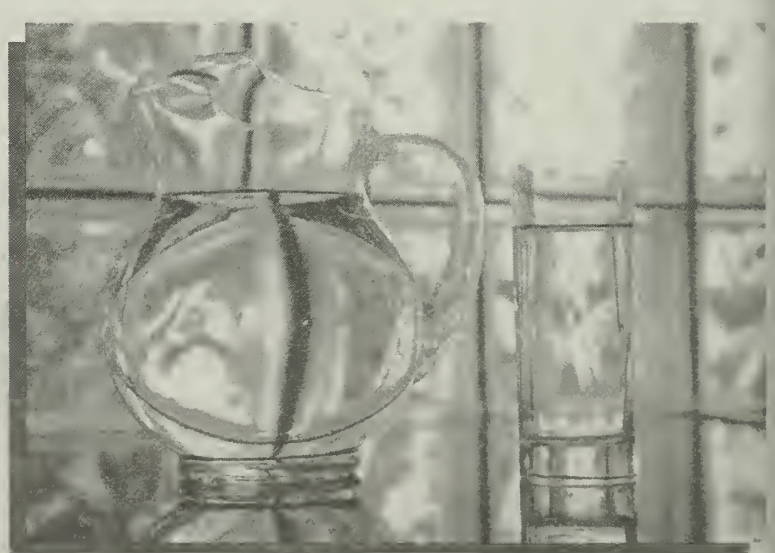
1. NOP/NOI (February 1999)
2. Public Comment Period 45 days
3. Draft EIR/EIS (November 1999)
4. Public Comment Period through February 22, 2000
5. Final EIR/EIS



Who is Metropolitan Water District?

The Metropolitan Water District of Southern California was created by a vote of the people in 1928, following passage of a bill by the California Legislature, to provide supplemental water supplies for cities and communities on the southern coastal plain. Metropolitan also operates the 242-mile Colorado River Aqueduct, which was completed in 1941.

Through its 27 member public agencies, Metropolitan provides almost 60 percent of the water used by more than 16 million people living in portions of San Bernardino, Riverside, Orange, Los Angeles, San Diego and Ventura counties. The mission of Metropolitan is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.



How Can I G More Information About The Program?

Public comment is an impo aspect of the environmental revi In accordance with federal and s a draft environmental document prepared for the Cadiz Groundw Storage & Dry-Year Supply Pro and is available for review. For m information, please call or write

CADIZ

Fiona Hutton
Cadiz Inc.
100 Wilshire Blvd. S
Santa Monica, CA 9
(310) 899-4700

Dirk Reed
Metropolitan Water
District of Southern
P.O. Box 54153
Los Angeles, CA 90
(213) 217-6163

APPENDIX C

Parties that received the Draft EIR/EIS

Group	Last Name	First Name	Address	Certified Mail	Date Received
Federal Agencies					
Mojave National Preserve	Stubbs	Chris	222 East Main Street Suite 202 Barstow, CA 92311	P963 174 646	12/06/99
Mojave National Preserve Advisory Commission	Hughes	Elden	14045 Honeysuckle Lane Whittier , CA 90604		
National Park Service	Jackson, Ph.D	William	1201 Oakridge Drive Fort Collins , CO 80525	P963 174 504	11/30/99
National Park Service	Leszcykowski	Andy	222 East Main Street Suite 202 Barstow , CA 92311	P963 174 565	11/30/99
National Park Service	Martin	Mary	222 East Main Street Suite 202 Barstow , CA 92311	P963 174 497	12/01/99
National Park Service	Morlock	Dale	1849 'C' Street Northwest Room 2749 Washington , DC 20240		
National Park Service	Quintana	Ernest	74485 National Park Drive Twentynine Palms , CA 92277		
National Park Service	Stubbs	Chris	222 East Main Street Suite 202 Barstow , CA 92311	P963 168 296	11/30/99
National Park Service	Woolsey	James	707 West Broadway Needles , CA 92363	P963 173 698	12/02/99
SAF/RQ Environmental Safety, Occ. Health			Room 4C916, Pentagon Washington DC 20330	P963 168 055	12/01/99
U.S. Army Corps of Engineers	Schubel	Richard	Los Angeles District Box 532711 Los Angeles , CA 90053-2352	P963 173 660	11/30/99
U.S. Army Corps of Engineers	Szijj	Antal	32330 Santa Ana Canyon Road Highland , CA 92346	P963 173 661	12/01/99
U.S. Army Corps of Engineers - Planning	Meagher	Tom	1325 J Street Sacramento , CA 95814		
U.S. Bureau of Indian Affairs	Townsend	Virgil	2038 Iowa Avenue Suite 101 Riverside , CA 92507	P963 173 732	12/01/99
U.S. Bureau of Land Management	Anderson	Ileene	2733 Caldwell Place West Hollywood , CA 90046	P963 174 465	11/30/99
U.S. Bureau of Land Management	Brady	Molly	101 West Spikes Road P.O. Box 888 Needles , CA 92363	P963 174 576	12/01/99
U.S. Bureau of Land Management	Crowe	Dick	6221 Box Springs Blvd. Riverside , CA 92507	P963 174 572	12/01/99
U.S. Bureau of Land Management	Downing	Ken	101 West Spikes Road P.O. Box 888 Needles , CA 92363	P963 173 729	12/03/99
U.S. Bureau of Land Management	Queen	Rolla	6221 Box Springs Blvd. Riverside , CA 92507	P963 173 657	12/01/99
U.S. Bureau of Land Management	Salt	Tim	6221 Box Springs Blvd. Riverside , CA 92507	P963 173 719	12/01/99
U.S. Bureau of Land Management	Smith	Roy	2850 Yoarfield Street Lakewood , CO 80215	P963 173 757	01/03/00
U.S. Bureau of Land Management	Williams	James	6221 Box Springs Blvd. Riverside , CA 92507	P963 174 555	12/01/99
U.S. Bureau of Land Management	Wright	Al	2135 Butano Drive Sacramento , CA 95825	P963 174 489	12/06/99
U.S. Bureau of Reclamation	Johnson	Bob	P.O. Box 61470 400 Railroad Avenue Boulder City , NV 89006-1470	P963 174 503	12/03/99
U.S. Bureau of Reclamation	Snow	Lester	P.O. Box 61470 Boulder City , NV 89006	P963 17494	12/03/99
U.S. Department of the Interior	Babbitt	Bruce	1849 'C' Street Mail Stop 2340 Washington , DC 20240	P963 173 665	12/09/99
U.S. Department of the Interior	Bradfish	Larry	600 Harrison Street Suite 545 San Francisco , CA 94107	P963 173 758	12/01/99
U.S. Department of the Interior	Davies	Heather	1849 'C' Street Mail Stop 2340 Washington , DC 20240		
U.S. Department of the Interior	Hayes	David	1849 'C' Street Mail Stop 2340 Washington , DC 20240	P963 173 676	12/02/99

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Group	Last Name	First Name	Address	Certified Mail	Date Received
U.S. Department of the Interior	Hickey	Michael	1849 'C' Street, Northwest Mail Stop 6412 Washington , DC 20240		
U.S. Department of the Interior	Nawi	David	2800 Cottage Way Sacramento , CA 95825	P963 168 208	12/23/99
U.S. Department of the Interior	Port	Pat	600 Harrison Street Suite 515 San Francisco , CA 94107	P963 173 656	12/01/99
U.S. Department of the Justice	Arnold	James	312 North Spring Street Room 1165 Los Angeles, CA 90012	P963 168 463	11/24/99
U.S. Environmental Protection Agency	Hecht	Hillary	75 Hawthorne Street San Francisco , CA 94105		
U.S. Environmental Protection Agency	Marcus	Felicia	75 Hawthorne Street San Francisco , CA 94105	P963 174 499	12/03/99
U.S. Environmental Protection Agency	West	Terry	75 Hawthorne Street San Francisco , CA 94105	P963 173 784	12/06/99
U.S. Fish and Wildlife Service	Bransfield	Ray	2496 Portola Road, Suite B Ventura , CA 93003	P963 174 575	11/30/99
U.S. Fish and Wildlife Service	Noda	Diane	2496 Portola Road, Suite B Ventura , CA 93003	P963 173 727	11/30/99
U.S. Fish and Wildlife Service	Roberts	Lisa	2496 Portola Road, Suite B Ventura , CA 93003	P963 168 494	11/24/99
U.S. Fish and Wildlife Service	Walker	George	222 East Main Street Suite 102 Barstow , CA 92311	P963 173 726	11/30/99
U.S. Geological Survey			5735 Kearny Villa Suite O San Diego , CA 92123	P963 173 737	12/17/99
U.S. Geological Survey Library	Miller	David	345 Middlefield Road - MS-975 Menlo Park , CA 94025	P963 168 111	11/26/99
U.S. House of Representatives	Faber	Bob	Subcommittee on Water and Power 1522 LHOB Washington, DC 20515	P963 173 709	12/06/99
U.S. House of Representatives	Lanich	Steven	House Resource Committee 509 OHOB Washington, DC 20515	P963 173 715	12/06/99
U.S. House of Representatives	Lewis	Jerry	1150 Brookside Avenue Suite 15 Redlands, CA 92373	P963 173 716	12/01/99
U.S. Senate	Beirne	Jim	Energy and Natural Resources Committee SD 364 Washington, DC 20510	P963 173 702	12/03/99
U.S. Senate	Boxer	Barbara	United States Senate 1700 Montgomery Street Suite 240 San Francisco, CA 94111	P963 173 703	12/02/99
U.S. Senate	Brooks	David	Energy and Natural Resources Committee	P963 173 710	11/30/99
U.S. Senate	Deegan	Colleen	Energy and Natural Resources Committee SD 364 Washington, DC 20510	P963 173 708	12/02/99
U.S. Senate	Feinstein	Dianne	11111 Santa Monica Blvd Suite 915 Los Angeles , CA 90025	P963 173 710	11/30/99
State Agencies					
California Air Resources Board	Duffy	Gordon	P.O. Box 2815 Sacramento , CA 95812	P963 174 568	12/07/99
California Air Resources Board	Menebroker	Ray	P.O. Box 2815 Sacramento , CA 95812	P963 173 651	12/02/99
California Department of Conservation	Arthur	Steve	801 'K' Street Sacramento , CA 95814	P963 173 651	12/02/99
California Department of Fish & Game	Black	Glenn	330 Golden Shore Suite 50 Long Beach , CA 90802	p963 174 577	11/30/99
California Department of Fish & Game	Dice	Jim	2022 Quintain Drive P.O. Box 2537 Borrego Springs , CA 92004	P963 174 569	12/01/99

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Group	Last Name	First Name	Address	Certified Mail	Date Received
California Department of Fish & Game	Hight	Robert	1416 Ninth Street Suite 1205 Sacramento , CA 95814	P963 174 472	12/03/99
California Department of Fish & Game	Mulcahy	Gerald	1416 Ninth Street Suite 1205 Sacramento , CA 95814	P963 173 731	12/01/99
California Department of Fish & Game	Nicol	Kimberly	47-800 Madison Street Suite 223 Indio, CA 92201		
California Department of Fish & Game	Taucher	Curt	330 Golden Shore Suite 50 Long Beach , CA 90802		
California Department of Parks & Recreation	Abeyta	Daniel	P.O. Box 942896 Sacramento , CA 94296-0001	P963 174 580	12/01/99
California Department of Parks & Recreation	Jones	Ken	1416 Ninth Street Room 1405 Sacramento , CA 95814	P963 174 566	12/01/99
California Department of Parks & Recreation	Schaub	David	P.O. Box 942896 Sacramento , CA 94296	P963 173 659	12/01/99
California Department of Transportation	Afaneth	Maisoon	P.O. Box 231 San Bernardino , CA 92402		
California Department of Transportation	Lewis	Veda	P.O. Box 942874 Sacramento , CA 94274	P963 174 564	12/01/99
California Department of Water Resources			P.O. Box 942874 Sacramento , CA 94274	P963 168 683	12/03/99
California Department of Water Resources			P.O. Box 942836 Sacramento , CA 95814	P963 168 213	1/27/2000
California Department of Water Resources	Hannigan	Thomas	P.O. Box 942836 Sacramento , CA 95814	P963 173 711	12/02/99
California Department of Water Resources	Hauge	Carl	P.O. Box 942836 Sacramento , CA 95814	P963 174 506	12/06/99
California Department of Water Resources	Knoop	Vern	770 Fairmont Avenue Suite 102 Glendale , CA 91203		
California Department of Water Resources	Macaulay	Steve	P.O. Box 942836 Sacramento , CA 95814	P963 174 500	12/08/99
California Department of Water Resources	Osugi	Doug	1416 Ninth Street 1115-1 Sacramento , CA 95814		
California Department of Water Resources	Ross	Tim	770 Fairmont Avenue Suite 102 Glendale , CA 91203		
California Department of Water Resources	Trommer	Bob	P.O. Box 942836 Sacramento , CA 95814	P963 173 756	12/31/99
California Integrated Waste Management Board	Chandler	Ralph	8800 Cal Center Drive Third Floor Sacramento , CA 95826		
California Regional Water Quality Control Board	Gruenberg	Phil	73-720 Fred Waring Drive Suite 100 Palm Desert , CA 92260	P963 174 473	12/09/99
California Resources Agency	Nichols	Mary	1416 Ninth Street Suite 1311 Sacramento , CA 95814	P963 174 484	12/01/99
California Water Resources Control Board	Pettit	Walt	2014 'T' Street Suite 130 Sacramento , CA 95814	P963 174 451	12/01/99
Colorado River Board of California	Zimmerman	Gerald	770 Fairmont Avenue Suite 100 Glendale , CA 91203	P963 174 487	12/01/99
Colorado State University	Smith	Judy	Fort Collins, CO 80523		
Governor's Office of Planning and Research	Rivasplata	Antero	1400 Tenth Street P.O. Box 3044 Sacramento , CA 95812	P963 173 658	12/06/99
Mojave Desert Resource Conservation District	Lounsbury	Pete	Star Route Box 45A Oro Grande , CA 92368		
Office of Assemblymember Mike Machado	McChesney	Jo-Ellen	State Capitol Room 5136 Sacramento, CA 95814	P963 173 684	12/01/99
Office of Governor Gray Davis	Adams	Linda	State Capitol Sacramento, CA 95814	P963 173 663	12/01/99

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Office of Governor Gray Davis	Gotch	Mike	State Capitol Sacramento, CA 95814	P963 173 675	12/01/99
Office of Majority Leader Kevin Shelley	Schifferle	Patricia	State Capital Room 319 Sacramento , CA 95814	P963 173 691	12/02/99
Office of Senator Chuck Poochigan	McCapes	Carolyn	State Capitol Room 2054 Sacramento, CA 95814	P963 173 683	12/01/99
Office of Senator John Burton	Shallenberger	Mary	State Capitol Room 205 Sacramento, CA 95814	P963 173 692	12/02/99
State Assembly	Baugh	Scott	State Capitol Room 4162 Sacramento, CA 95814	P963 173 666	12/01/99
State Assembly	Calderon	Thomas M.	State Capitol Room 4005 Sacramento, CA 95814	P963 173 669	12/01/99
State Assembly	Granlund	Brett	State Capitol Room 4164 Sacramento, CA 95814	P963 174 417	12/02/99
State Assembly	Kuehl	Sheila James	State Capitol Room 3160 Sacramento, CA 95814	P963 173 680	12/01/99
State Assembly	Leonard	Bill	State Capital Room 3104 Sacramento, CA 95814	P963 174 288	12/02/99
State Assembly	Longville	John	State Capitol Room 2196 Sacramento, CA 95814	P963 174 289	12/02/99
State Assembly	Machado	Mike	State Capitol Room 5136 Sacramento, CA 95814	P963 173 682	12/01/99
State Assembly	Olberg	Keith	State Capitol Room 4117 Sacramento, CA 95814	P963 173 804	12/02/99
State Assembly	Villaraigosa	Antonio	State Capitol Room 219 Sacramento, CA 95814	P963 173 724	12/02/99
State Senate	Brulte	Jim	State Capitol Room 5082 Sacramento, CA 95814	P963 174 471	12/02/99
State Senate	Burton	John	State Capitol Room 205 Sacramento, CA 95814	P963 173 668	12/01/99
State Senate	Costa	Jim	State Capitol D-16 1234 Sacramento, CA 95814	P963 173 679	12/01/99
State Senate	Johnson	Ross	State Capitol Room 305 Sacramento, CA 95814	P963 173 678	12/01/99
State Senate	Knight	William	State Capitol Room 5082 Sacramento, CA 95814	P963 174 287	12/02/99
State Senate	Polanco	Richard	State Capitol Room 313 Sacramento, CA 95814	P963 173 688	12/02/99
State Senate	Vierra	Lana	State Capitol Sacramento, CA 95814	P963 173 723	12/02/99
University of California, Santa Barbara	Clark	Jordan	Santa Barbara, CA 93106		
Washington University	Criss	Robert	St. Louis, MS 63130		
Regional and Local Agencies					
Arvin-Edison Water Storage District	Collup	Steven	P.O. Box 175 Arvin, CA 93203	P963 174 415	12/02/99
Baldy Mesa Water District`	Davis	Duane	10313 Duncan Road Victorville, CA	P963 173 672	12/01/99
Chino Basin Watermaster	Vanden Huevel	Geoffry	7551 Kimball Avenue Chino, CA 91710	P963 173 722	11/30/99
City of Barstow	Kopach	Paul	304 East Buena Vista Barstow , CA 92311	P963 168 302 P963 168 255	12/03/99 12/06/99

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City of Barstow	Warner	Paul	220 East Mountain View Barstow, CA 92311	P963 173 806	12/03/99
City of Needles	Gukin	Barbara	1111 Bailey Avenue Needles , CA 92363	P963 174 464	12/01/99
City of Needles	Parry	Tom	817 Third Street Needles , CA 92363	P963 173 697	12/06/99
City of San Bernardino	Price	Millicent	556 West Sixth Street San Bernardino , CA 92410		
City of Twentynine Palms	Hart	Jim	P.O. Box 995 6136 Adobe Road Twentynine Palms , CA 92277	P963 173 377	12/02/99
City of Twentynine Palms	Muller	Linda	6078 Adobe Road Twentynine Palms , CA 92277	P963 168 253	12/02/99
City of Victorville	Roberts	John L.	P.O. Box 5001 Victorville, CA 92393	P963 173 803	12/03/99
Coachella Valley Water District	Harrell	Alan	P.O. Box 1058 Coachella, CA 92236	P963 173 783	12/03/99
Coachella Valley Water District	Levy	Tom	P.O. Box 1058 Coachella, CA 92236	P963 173 681	12/01/99
Coastal MWD	Van Blarcom	Ron	#3 Monarch Bay Plaza Suite 205 Dana Point , CA 92629		
Colorado River Board of California	Jones	Virgil	770 Fairmont Avenue Suite 100 Glendale, CA 91203	P963 173 713	12/01/99
County of San Bernardino	Davis	Kathy	385 North Arrowhead Avenue Fifth Floor San Bernardino , CA 92415		
County of San Bernardino	Eaves	Jerry	385 North Arrowhead Avenue Fifth Floor San Bernardino , CA 92415	P963 174 416	12/02/99
County of San Bernardino	Goss	John	385 North Arrowhead Avenue First Floor San Bernardino , CA 92415	P963 173 674	11/30/99
County of San Bernardino	Hansberger	Dennis	385 North Arrowhead Avenue Fifth Floor San Bernardino , CA 92415	P963 173 376	12/02/99
County of San Bernardino	Kieczykowski	Ed	104 West Forth Street San Bernardino , CA 92415-9241	P963 174 582	12/02/99
County of San Bernardino	Miller	Ken	385 North Arrowhead Avenue Fifth Floor San Bernardino , CA 92415	P963 173 653	11/30/99
County of San Bernardino	Ravgiala	John	County Government Center 385 N. Arrowhead Avenue, 2nd Fl. San Bernardino, CA 92415	P963 168 404	11/29/99
County of San Bernardino	Reeder	Wes	385 North Arrowhead Avenue Fifth Floor San Bernardino , CA 92415	P963 168 304	12/02/99
Desert Water Agency	Ainsworth	Dan	P.O. Box 1710 Palm Springs, CA 92263	P963 173 699	12/01/99
East Bay Municipal Utility District	Polanc	Rosanna	375 11th Street Mail Stop 305 Oakland , CA 94607		
Eastern Municipal Water District	Brudin	John B.	P.O. Box 8300 Perris, CA 92572	P963 173 705	12/02/99
Friant Water Users Authority	Moss	Richard	854 North Harvard Avenue Lindsay, CA 93247	P963 173 685	12/01/99
Hi-Desert Water District	Bryant	Charles E.	P.O. Box 1210 Yucca Valley, CA 92286	P963 173 706	12/01/99
Imperial Irrigation Water District	Silva	Jesse	333 East Barioni Blvd. P.O. Box 937 Imperial, CA 92251	P963 173 693	12/01/99
Inland Counties Water Association	Araiza	Anthony	P.O. Box 578 Rialto, CA 92377	P963 173 664	12/16/99
Inland Empire Utilities Agency	Atwater	Richard	9400 Cherry Avenue Building A Fontana , CA 92335	P963 173 728	12/02/99
Joshua Basin Water District	Lyons	Terry	61750 Chollita Road P.O. Box 675 Joshua Tree , CA 92252		

Parties that received the Draft EIR/EIS

Group	Last Name	First Name	Address	Certified Mail	Date Received
Joshua Basin Water District	Lyons	Terry	61750 Chollita Road P.O. Box 675 Joshua Tree, CA 92252	P963 173 695	12/01/99
Kern County Water Agency	Clark	Tom	3200 Rio Mirada Drive P.O. Box 58 Bakersfield, CA 93302	P963 173 670	12/06/99
Kern Delta Water District	Frick	Howard	5001 Taft Highway Bakersfield, CA 93307	P963 173 673	12/01/99
Kern Delta Water District	Mulkay	Mark	501 Taft Highway Bakersfield, CA 93307	P963 173 686	12/01/99
Los Angeles Department of Water and Power	Pettijohn	Dave	111 North Hope Street Room 1460 Los Angeles , CA 90012-5701		
Mojave Desert Air Quality Management District	Fryxell	Charles	14306 Park Avenue Victorville , CA 92392	P963 174 567	11/30/99
Mojave Water Agency	Norman	John	22450 Headquarters Drive P.O. Box 1089 Apple Valley , CA 92307		
Mojave Water Agency	Norman	John W.	P.O. Box 1089 Apple Valley, CA 92307	P963 173 696	12/06/99
National Applied Resource Sciences Center	Summers	Paul	P.O. Box 25047 Building 50, RS-130, Denver Federal Center Denver , CO 80225-0047		
Needles Utilities	Claypool	Bill	212 'H' Street Needles , CA 92363		
Orange County Water District	Mills	William R.	P.O. Box 8300 Fountain Valley, CA 92728	P963 173 717	12/01/99
Palo Verde Irrigation District	Reynolds	Hal	180 West 14th Avenue Blythe, CA 92225	P963 173 689	12/01/99
Regional Clearinghouse			818 West 7th Street 12th Floor Los Angeles , CA 90017	P963 174 581	11/31/99
San Bernardino Associated Governments	Barmak	Debra	472 North Arrowhead Avenue San Bernardino,CA 924001	P963 173 701	12/01/99
San Bernardino Associated Governments	King	Norman	472 North Arrowhead Avenue San Bernardino, CA 92401	P963 173 714	12/01/99
San Bernardino County Fish & Game Dept.			157 W. 5th Street 2nd Fl San Bernardino, CA 92415	P963 168 087	11/29/99
San Bernardino County	Crutzinger	Jackson	HAZMAT 385 N. Arrowhead Avenue, 2nd Floor San Bernardino, CA 92415	P963 168 158	11/29/99
San Bernardino County HAZMAT	Jeska	John	15505 Civic Drive Victorville, CA 92392	P963 168 196	11/29/99
San Bernardino County Environmental Health Services Dept.	Lawrence	Laura M.	385 N. Arrowhead Avenue San Bernardino, CA 92415	P963 168 425	11/29/99
San Bernardino County PDH/EHS/LEA	Stevens	Mark	385 N. Arrowhead Avenue 2nd Fl San Bernardino, CA 92415	P963 168 379	11/29/99
San Bernardino County Sheriff's Dept.	Wiedeman	Delvin J.	635 East Third Street San Bernardino, CA	P963 168 273	11/29/99
San Bernardino County Building and Safety Dept.	Givens	Gary	P.O. Box 60 Star Route 1 Joshua Tree, CA 92252	P963 168 121	11/29/99
San Bernardino County EPWA Analysis	Davis	Carol	385 N. Arrowhead Avenue San Bernardino, CA 92415	P963 168 145	11/29/99
San Bernardino County Museum	Oles	Paul	2024 Orange Tree Lane Redlands , CA 92374	P963 168 303	12/03/99
San Bernardino Valley Municipal Water District	Fletcher	Louis	1350 South 'F' Street P.O. Box 5906 San Bernardino , CA 92412-5906		
San Bernardino Valley Municipal Water District	Fletcher	Louis	1350 South F Street P.O. Box 5906 San Bernardino, CA 92412	P963 173 730	12/03/99
Santa Ana Watershed Project Authority	Grindstaff	Joe	11615 Sterling Avenue Riverside, CA 92503	P963 174 418	12/01/99
Semitropic Water Storage District	Boschman	Will	P.O. Box Z Wasco, CA 93280	P963 173 667	12/01/99
Southern California Association of Governments	Pisano	Mark J.	818 West Seventh Street 12th Fl Los Angeles, CA 90017	P963 173 718	11/30/99

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Southern California Association of Governments	Stein	J. David	818 West Seventh Street 12th Floor Los Angeles , CA 90017-3435	P963 174 493	12/01/99
Three Valleys Municipal Water District	Garcia	Mario	1021 Miramar Avenue P.O. Box 1300 Claremont , CA 91711		
Town of Yucca Valley	Kilger	Brad	57090 29 Palms Highway Yucca Valley , CA 92284	P963 174 290	12/02/99
Twentynine Palms Water District	Johnson	Tina	72401 Hatch Road P O Box 1735 Twentynine Palms , CA 92277		
Twentynine Palms Water District	Johnson	Tina	72401 Hatch Road P.O. Box 1735 Twentynine Palms, CA 92277	P963 173 694	12/02/99
West World Water	Tansey	Michael	611 West Eighth Street Davis , CA 95616	P963 173 759	12/18/99
Western Municipal Water District	Harriger	Donald L.	P.O. Box 5286 Riverside, CA 92517	P963 173 712	11/29/99
Yucaipa Valley Water District	Copelan	Steve	P.O. Box 730 Yucaipa, CA 92399	P963 173 707	12/01/99
Businesses					
	Boodakian	Harry	1211 Morningside Way Venice , CA 90291		
	Millard	Norman	11745 Schenault Street Los Angeles , CA 90049		
All American Pipeline Operating Company	Janak	Jordan	10000 Ming Avenue Bakersfield , CA 93309	P963 168 289	12/06/99
Arizona & California Railroad	Scott	John	1301 California Avenue Parker , AZ 85344	P963 168 294	12/03/99
Boyle Engineering	Duffield	Debbie	1501 Quail Street Newport Beach , CA 92660		
Building Industry Association	Williams	Frank	9227 Haven Avenue Suite 280 Rancho Cucamonga , CA 91730		
Burlington Northern Santa Fe Corporation	Brendza	Bob	P.O. Box 961052 Fort Worth , TX 76161-0052	P963 168 291	12/06/99
Burlington Northern Santa Fe Corporation	DiCamillo	LaDonna	P.O. Box 961052 Fort Worth , TX 76161-0052	P963 168 276 P963 168 290	11/29/99 12/09/99
Business Publishers Inc.			8737 Colesville Road Silver Spring , MD 20910		
California Chamber of Commerce	Nera	Valerie	1201 'K' Street Suite 1200 Sacramento , CA 95814		
Catellus Development Corporation	Bezzant	John	4000 Westerly Place Suite 200 Newport Beach , CA 92660	P963 168 292 P963 168 300	12/02/99 12/06/99
Clark Mountain Allotment	Dawson	Dick	P.O. Box 650 HCR 37 Sandy Valley, NV 89019	P963 168 152	11/30/99
De Cuir & Somach	Hitchings	Andy	400 Capitol Mall Suite 1900 Sacramento , CA 95814		
Delta Wetlands	Festersen	Kay	3697 Diablo Blvd. Suite 100 Lafayette , CA 94549	P963 173 785	12/09/99
Delta Wetlands	Winther	John	3697 Diablo Blvd. Suite 100 Lafayette , CA 94549	P963 168 276	11/29/99
Geothermal Surveys, Inc.	Birman	Joseph	520 Mission Street Pasadena, CA 91030	P963 174 466	12/02/99
GSi/water	Birman	Joseph	520 Mission Street South Pasadena , CA 91030	P963 168 299	12/07/99
Hills Brothers Chemical	Kynast	Karl	P.O. Box 43 101 S. Amboy Road Amboy , CA 92304	P963 168 305	12/03/99
Hollister & Brace	Candy	Peter	P.O. Box 630 Santa Barbara , CA 93102	P963 168 210	01/18/00
Integrated Water Technologies, Inc.	Harris	Jennifer	33071 Daniel Drive Dana Point , CA 92629	P963 168 299	12/07/99
J G Boswell Company	Tristao	Dennis	710 Bainum Avenue Corcoran , CA 93212		
Law Offices of Brad Siefker	Siefker	Brian	828 University Avenue Sacramento , CA 95825		

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Lee Chemical	Bardsley	Robert	21250 Boxsprings Road Suite 201 Moreno Valley , CA 92557	P963 168 306	12/03/99
Mojave Pipeline Operating Company, Inc.	Partin	Grady	5401 East Brundage Lane Bakersfield , CA 93307	P963 173 747 P963 168 307	12/10/99 12/03/99
National Chloride Company of America	Beeghly	Tom	P.O. Box 604 Norwalk , CA 90650	P963 173 687 P963 168 293	12/01/99 12/03/99
Navigant Consulting, Inc.	Malinowski	Jay	225 West Broadway Suite 400 Glendale , CA 91240-1331	P963 173 747	12/10/99
Pacific Gas & Electric Company	Lytle	Dan	35863 Fairview Road Hinkley , CA 92347	P963 173 748 P963 174 501	12/31/99 12/02/99
Pacific Gas & Electric Company	Mingus	Russ	530 South China Lake Blvd. Ridgecrest , CA 93555	P963 174 495	12/02/99
Pacific Gas & Electric Company	Sigala	Van	530 South China Lake Blvd. Ridgecrest , CA 93555	P963 174 491	12/02/99
Paramount Farming Company	Phillimore	Bill	33141 East Lerdo Highway Bakersfield, CA 93308	P963 173 687	12/01/99
Questar/Paragon Partners	Mouser	Gerald	5762 Bolsa Avenue Suite 201 Huntington Beach , CA 92649	P963 168 308	12/03/99
Ryley, Carlock & Applewhite	Forbes	Denise	101 North 1st Street Suite 2700 Phoenix , AZ 85003	P963 173 748	12/31/99
Silver Valley Realty	Stearn	Fred	44244 Naitional trails Highway Newberry Springs , CA 92365		
Southern California Edison	Morrison	Mike	6999 Old Woman Springs Road Yucca Valley , CA 92284	P963 174 481	12/02/99
Southern California Edison	Warren	Jim	30553 Rimrock Road Barstow , CA 92311	P963 174 491	12/02/99
Southern California Gas Company	Gourley	Jim	P.O. Box 3003 Redlands , CA 92373-0306	P963 174 469	12/03/99
Southern California Gas Company	Phillips	Rick	P.O. Box 3003 Redlands , CA 92373-0306	P963 174 479	12/06/99
Stetsoin Engineers	Helsley	Jeff	3104 E. Garvey Ave. West Covina, CA 91791	P963 168 205	11/30/99
Tate & Associates	Tate	Stephen	16530 31st Drive Southeast Bothell , WA 98012	P963 174 492	12/07/99
TETRA Technologies, Inc.	Harden	Kim	P.O Box 73087 Houston , TX 77273		
TETRA Technologies, Inc.	Woods, III	John	P.O Box 73087 Houston , TX 77273	P963 168 295	12/06/99
Valley View Allotment	Blincoe	Richard	Route 1, Box 1339 Heyborn, ID 83336	P963 168 033	12/01/99
Viceroy Gold Mines	Zaebst	Robert	P.O. Box 68 Search Light , NV 89046	P963 174 488	12/06/99
Groups and Organizations					
Association of California Water Agencies	Hall	Stephen	910 K Street Suite 100 Sacramento, CA 95814	P963 173 375	12/03/99
Audubon Society	Nash	Susan	P.O. Box 1254 Lakeview , CA 92567	P963 173 654	11/30/99
Baker Community Services District	Fisher	Kelly	P.O. Box 590 Baker, CA 92309	P963 168 044	11/29/99
Baker Unified School District			P.O. Box 460 Baker, CA 92309	P963 168 415	11/29/99
California Environmental Protection Agency	Hickox	Winston	555 Capitol Mall Suite 525 Sacramento, CA 95814	P963 173 677	12/01/99
California Farm Bureau Federation	Osteen	Mary	2300 River Plaza Drive Sacramento, CA 95833	P963 173 760	12/02/99
Chemehuevi Indian Reservation	Dunlap	Gjrjle	P.O. Box 1976 NPO #364 Havasu Landing, CA 92363	P963 168 160	12/01/99
Colorado River Water Users Association	Sutton	Bernadine	P.O. Box 1058 Coachella, CA 92236	P963 173 721	12/01/99
Committee for Protection of Rural Independence	Giesing	Frank	P.O. Box 681 Joshua Tree , CA 92252		
Desert Environmental Response Team (DERT)	Fick	David	HC-1 Box 7216 Joshua Tree , CA 92252	P963 174 474	12/02/99
Desert Environmental Response Team (DERT)	Mendoza	Ramon	58692 Los Coyotes Road Yucca Valley , CA 92284	P963 174 485	12/02/99

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Desert Environmental Response Team (DERT)	Smith	Jerry	P.O. Box 935 Twentynine Palms , CA 92277	P963 174 482	12/02/99
Desert Protection Council	Allen	Douglas	P.O. Box 3635 San Diego , CA 92163-1635		
Desert Survivors	Ellis	Bob	1290 Hopkins Apt. 37 Berkeley , CA 94702		
Environmental Defense Fund	Graff	Tom	5655 College Avenue Oakland , CA 94618		
Environmental Defense Fund	Rosekrans	Spreck	5655 College Avenue Suite 304 Oakland , CA 94618		
Essex Environmental	Stalder-Mills	Heidi	637 Mail Street Half Moon Bay , CA 94101		
Fort Mojave Indian Tribe	Algots	John	500 Merriman Needles , CA 92363	P963 174 507	12/03/99
Fort Mojave Indian Tribe	Helton	Nora	500 Merriman Needles , CA 92363	P963 174 505	12/03/99
Fort Mojave Indian Tribe	Lopez	Steve	500 Merriman Needles , CA 92363	P963 174 502	12/03/99
Fort Mojave Indian Tribe	Smith	Chad	P.O. Box 5990 Mojave Valley , AZ 86440		
Living Desert	Anderson	Kirk	47900 Portola Palm Desert, CA 92260	P963 168 420	11/26/99
Mojave Desert Heritage and Cultural Association	Casebier	Dennis	P.O. Box 7 Essex , CA 92332	P963 174 468	12/02/99
Morongo Basin Conservation Association	Carraher	Christine	P.O. Box 935 29 Palms , CA 92277	P963 173 736	12/24/99
Morongo Basin Conservation Association	Herbert	Esther	P.O. Box 249 29 Palms , CA 92277		
Morongo Basin Desert Conservation Association	Anderson	Andy	52425 Quail Bush Road Johnson Valley, CA 92285	P963 173 700	12/03/99
National Parks Conservation Association	Wagenvoord	Helen	2273 Vine Street Berkely , CA 94709		
Natural Resources Committee	Ryan	Lisa	1020 North Street Room 227 Sacramento, CA 95814	P963 173 690	12/03/99
Natural Resources Defense Council	Nelson	Barry	71 Stevenson Street Suite 1825 San Francisco , CA 94105		
People Against Radioactive Dumping (PARD)	Lopez	Ruth	420 'E' Street Needles , CA 92363	P963 174 562	12/02/99
Public Employees for Environmental Responsibility	Wilshire	Howard	2001 South Street, Northwest Suite 570 Washington , DC 20009	P963 174 421	12/06/99
Save the Bay	Koehler	Cynthia	1600 Broadway Suite 300 Oakland , CA 94612	P963 174 439	12/02/99
Sierra Club of California	Bartleman	Allen	505 Arrowhead Avenue Suite 308 San Bernardino , CA 92401	P963 17476	12/02/99
Sierra Club of California	Craven	Bill	1414 K Street Suite 300 Sacramento, CA 95814	P963 174 454	12/02/99
Sierra Club of California	Czamanske	David	3435 Wilshire Blvd. Suite 320 Los Angeles , CA 90010-1904	P963 174 571	11/30/99
Sierra Club of California	Haye	Stan	230 Larkspur Street Ridgecrest , CA 93555	P963 174 419	12/03/99
Sierra Club of California	Hughes	Elden	14045 Honeysuckle Lane Whittier , CA 90604-2510	P963 174 486	12/02/99
Sierra Club of California	Papparian	Michael	1414 K Street Suite 300 Sacramento, CA 95814	P963 174 455	12/02/99
The Building Industry	Williams	Frank	9227 Haven Avenue Suite 280 Rancho Cucamonga, CA 91730	P963 174 490	12/02/99
The Desert Tortoise Council	Stewart	Glen	Pomona , CA 91768	P963 174 420	12/02/99
Twentynine Palms Band of Mission Indians	Cheung	Anne	46200 Harrison Place Coachella , CA 92236		
Water Education Foundation	Schmidt-Sudman	Rita		P963 173 720	12/02/99

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General Public					
	Bell	Chuck	P.O. Box 193 Lucerne Valley, CA 92356	P963 168 068	12/01/99
	Boodakian	Harry	1211 Morningside Way Venice, CA 90291	P963 174 467	12/02/99
	Camarillo	Ben	7931 First Street Stanton , CA 90680		
	Emmerich	Kevin	P.O. Box 51 Death Valley , CA 92328	P963 168 297	12/06/99
	Geller	Douglas	1634 SE 56th Avenue Portland , OR 97215		
	Griswold	George B.	New Mexico Tech Socorro, NM 87801	P963 168 138	12/02/99
	Hayes	Gary	3777 Pecos McLoud Suite 104 Las Vegas , NV 89121		
	Limon	Paul	306 Chestnut Needles , CA 92363	P963 174 563	12/02/99
	Linch	Robert	340 East Palm Lane, #148 1Phoenix, AZ 85004	P963 173 752	01/11/99
	Mikels	Marjorie	201 North First Avenue Upland , CA 91786-6061	P963 173 652	11/30/99
	Pierce	Colin	100 Spear Street Suite 1500 San Francisco , CA 94105		
	Soto	William	4792 Kermath Street Placentia , CA 92870		
	Stearn	Fred	44244 National Trails Highway Newberry Springs, CA 92365	P963 168 206	12/07/99
	Tristao	Dennis	710 Baiman Avenue Corcoran, CA 03212	P963 168 209	01/14/00
	Turnbull	Stephen	2322 Drummond Street Vicksburg , MS 39180		
	Vaniman	David	Route 10 Box 87DV Santa Fe , NM 89501		
	Vorrie	Norbert	3024 21st Avenue North Fort Dodge, CA 50501	P963 168 212	1/14/00
	Wheat	Frank	333 Grand Avenue 46th Floor Los Angeles , CA 90071		
Bauco Bilbao Viscaya Argentaria	Hudson	Lawrence	108 Cannon Street London EC4N 6EU		
Boulder Canyon Operations Office			P.O. Box 61470 Boulder City , NV 89006		
Jacobson Communications	Scott	Jim	22333 Pacific Coast Highway Suite 207 Malibu , CA 90265		
The Janes Network	Janes	Stephen	230 Morrissey Blvd. Santa Cruz , CA 95062		
Triton Group LLC	Werner	Andrew	3706 Georgia Street Suite 8 San Diego , CA 92103		

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	Abbott	Eric	509 White Ash Street Windsor , CA 95492-8199		
	Aberg	Tricia	57090 29 Palms Highway Yucca Valley , CA 92284	P963 168 469	11/29/99
	Ackerman	Hans	P.O. Box 825 Lucerne Valley , CA 92356	P963 168 416	11/29/99
	Allsop	Richard	975 Nora, #201 San Francisco,CA 94080		
	Amster	Adolph	P.O. Box 1106 Ridgecrest , CA 93556	P963 168 421	11/27/99
	Anderson	Scott	396 Winslow Avenue Long Beach , CA 90814	P963 168 465	11/26/99
	Baty, Ph.D.	Roger	924 East Sharon Road Redlands , CA 92374	P000 000 000	11/29/99
	Baxter	Howard	129 Hilltop Place RR 1 Box 225 New London , NH 03257	P963 168 024	11/30/99
	Beals	Cassie	2544 Ivy Drive Oakland , CA 94606	P963 168 009	11/29/99
	Beebe	Richard	729 Hickory Avenue Tracy , CA 95376	P963 168 015	11/26/99
	Beezley	Julie	17500 Gilmore Street Van Nuys , CA 91406		
	Bennett	Alex	900 Duke Way Mountain View , CA 94040	P963 168 029	11/27/99
	Bertone	Chris	13907 Olive View Drive Sylmar , CA 91342	P963 168 011	11/24/99
	Blair	Claudia	P.O. Box 8 Essex , CA 92332	P963 168 070	11/30/99
	Blair	Jerry	12652 Seventh Street Garden Grove , CA 92640	P963 168 031	11/27/99
	Blair	Milton	P.O. Box 3214 Needles , CA 92363	P963 168 054	11/29/99
	Blincoe	Richard	Valley View Allotment Route One, Box 1339 Heyborn , ID 83336		
	Boyd	Susan	11973 San Vicente Blvd. Los Angeles , CA 90049		
	Brattstrom	Bayard	19151 La Pradera Yarba Linda , CA 92686	P963 168 037	12/06/99
	Breed	Martha	3301 Moraga Blvd. Lafayette , CA 94549-4613	P963 168 118	11/29/99
	Brubaker	Mark	8303 Ninth Street Cucamonga , CA 91730	P963 168 017	11/29/99
	Camara	Tom	474 Green Glen Way Mill Valley , CA 94941	P963 168 032	11/27/99
	Cates	Robert	140 Healy Treail Chatsworth , CA 91311	P963 168 030	11/27/99
	Cavish	Jacquelyn	508 Village Road Port Hueneme , CA 93041		
	Chesney	Robert	P.O. Box 455 Needles, CA 92363	P963 168 046	11/29/99
	Cheury	Marshall	46-200 Harrison Place Coachella , CA 92236	P963 168 028	11/26/99
	Chiropolos	James	970 Vermont #4 Oakland , CA 94610	P963 168 045	12/03/99
	Clark	Margaret	945 Salem Drive #21 Redlands , CA 92373	P963 168 027	11/26/99
	Claypool	Bill	212 H Street Needles, CA 92363	P963 174 561	12/02/99
	Cooper	Daniel	P.O. Box 1355 Yucca Valley , CA 92286	P963 168 039	12/02/99
	Copoulos	John	226 Page Street San Francisco , CA 94102		
	Court	Bill	1813 College View Drive Monterey Park , CA 91754		
	Cuff	Michael	P.O. Box 334 Ocotillo , CA 92259	P963 168 202	11/29/99

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	Cummings	Frank	4172 Shorebreak Drive Huntington Beach , CA 92649	P963 168 163	11/29/99
	Curry	Robert	P.O. Box 770 Soquel , CA 95073	P963 168 146	11/26/99
	Daffrom	William	P.O. Box 667 Arviaca , AZ 85601	P963 168 201	12/01/99
	Danzeisen	Cathy	10 Catalpa Avenue #6 Mill Valley , CA 94941	P963 168 151	11/30/99
	Dawson	Dick	Clark Mountain Allotment P.O. Box 650 HCR 37 Sandy Valley , NV 89019		
	Distefano	Kathy	1328 Erin Avenue Upland , CA 91786-2660	P963 168 162	12/04/99
	Dodson	Jim	43904 North Galion Avenue Lancaster , CA 93536	P963 168 150	11/26/99
	Dougherty	Mike	P.O. Box 44 Baker , CA 92309	P963 168 161	12/01/99
	Dyer	Jeff	4961 Ben Avenue North Hollywood , CA 91607	P963 168 156	11/24/99
	Ely	Marion	P.O. Box 2577 Apple Valley , CA 92307	P963 168 101	11/26/99
	Emmerich	Kevin	P.O. Box 51 Death Valley , CA 92328	P963 168 147	11/26/99
	Evans	Joseph	225 North 'K' Street Needles , CA 92363	P963 168 040	11/26/99
	Evans	William	1645 Cottonwood Lane Mohave Valley , AZ 86440	P963 168 125	11/27/99
	Everett	Rick	P.O. Box 471 Rim Forest , CA 92378	P963 168 090	11/29/99
	Fairchild	Catherine	28984 Gifford Moreno Valley , CA 92360		
	Fisher	Dave	P.O. Box 1837 Barstow , CA 92311	P963 168 143	11/29/99
	Frances	June	1813 College View Drive Monterey Park , CA 91754		
	Freeman	Gerald	67668 Castle Buttes Drive Nipton , CA 92364	P963 168 103	12/01/99
	Fry	Henry	1030 South Verde Street Anaheim , CA 92805		
	Garrett	James	3749 Greenwood Avenue Los Angeles , CA 90066	P963 168 134	11/27/99
	Goitein	Earnest	167 Almendral Avenue Atherton , CA 94027	P963 168 093	11/26/99
	Greenberg	Paul	6114 Cahuenga Boulevard #6 North Hollywood , CA 91606		
	Gregory	Maria	16240 Van Buren Blvd. Riverside , CA 92504	P963 168 100	11/30/99
	Grisamer	Gary	HCR 20 Box 1616 Blythe , CA 92225	P963 168 325	11/29/99
	Hague	George	26711 Ironwood Avenue Moreno Valley , CA 92360		
	Harmon	Edie	P.O. Box 444 Ocotillo , CA 92259	P963 168 132	12/09/99
	Harrell	Mike	1012 Cottonwood Drive Calimesa , CA 92320	P963 168 131 P963 168 005	12/24/99 11/29/99
	Harris	John	1731 Berkeley Way Berkeley , CA 94703	P963 168 091	11/26/99
	Hayes	Leone	5416 Candlelight Drive La Jolla , CA 92037	P963 168 092	11/26/99
	Hedges	Tom	2154 Ward Street Berkeley , CA 94705	P963 168 003	11/27/99
	Hendricks	Cecil	12027 Darling Road Agua Dulce , CA 91350		
	Hoffner	John	1026 Crestview Drive Pasadena , CA 91107	P963 168 182	11/24/99
	Hohstadt	John	411 'A' Street Needles , CA 92363		

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	Holland	Jim	601 Nevada Highway Boulder City , NV 89005	P963 168 459	11/26/99
	Hymen	Fred	HCR #1 Box 512 Nipton , CA 92364	P963 168 458	11/30/99
	Johnson	Deborah	P.O. Box 213 Daggett , CA 92327	P963 168 186	12/14/99
	Jones	Pam	1622 Curtis Avenue Manhattan Beach , CA 90266		
	Kanne	Robert	5975 Kingsbriar Drive Yorba Linda , CA 92686	P963 168 190	11/27/99
	Kellogg	Timothy	1490 Rose Street Berkeley , CA 94702	P963 168 452	11/26/99
	Kent	Doug	2736 Ganges Place Davis , CA 95616	P963 168 188	11/30/99
	Kent	Elaine	2736 Ganges Place Davis , CA		
	Kirkham	Ray	7424 Morning Star R-2-546 Twentynine Palms , CA 92277		
	Kocino	Scott	794 Arguello San Francisco , CA 94118		
	Kukanen	Jorma	30 Underhill Road Mill Valley , CA 94941	P963 168 443	12/01/99
	Kupcha	Karen	P.O. Box 1291 Yucca Valley , CA 92286	P963 168 359	11/26/99
	La Pre	Larry	4178 Chestnut Street Riverside , CA 92501	P963 168 448	11/29/99
	Lamond	Robert	4808 Blackthorne Avenue Long Beach , CA 90808	P963 168 441	11/30/99
	Lang	Roxanne	HC1, Box 357 Nipton , CA 92364		
	Lawrence	Don	11652 Brookshire Avenue Garden Grove , CA 92640	P963 168 439	11/27/99
	Lee	David	P.O. Box 101 Kelso , CA 92351	P963 168 427	12/29/99
	Lee	Simon	2601 Piedmont Avenue Berkeley , CA 94704-3412		
	Lee Alpern	Esther	2324 Bronson Hill Los Angeles , CA 90068	P963 168 169	11/29/99
	Lesh	Larry	3515 Oak Glen Lane San Diego , CA 92117	P963 168 428	11/24/99
	Levick	Lainie	1143 East Ninth Street Tucson , AZ 85719-5438	P963 168 446	11/26/99
	Martin	Dan	9709 Mountain View #1703 Scottsdale , AZ 85258	P963 168 337	11/26/99
	McAllister	Bard	417 North Kent Visalia , CA 93291	P963 168 485	12/26/99
	McCurry	Edna	P.O. Box 684 Somis , CA 93006	P963 168 344	11/30/99
	McCutchan	Richard	1178 North Del Sol Lane Diamond Bar , CA 91765		
	McIntyre	Jim	10343 Hamilton Drive Route Tow Mohave Valley , AZ 86440	P963 168 343	11/27/99
	McKee	Karen	P.O. Box 396 Running Springs , CA 92382		
	Mead	Christine	590 Contada Circle Danville , CA 94526-3530		
	Metzger	Harry	227 Ashlar Drive Napa , CA 94558	P963 168 481	11/30/99
	Meyers	Gene	P.O. Box 87 Searchlight , NV 89046	P963 168 329	11/30/99
	Miles	Larry	1332 Villiage Street Redlands , CA 92374		
	Miles	Pearl	1322 Villiage Street Redlands , CA 92374		
	Millard	Norman	11745 Schenault Street Los Angeles, CA 90049	P963 174 496	12/01/99

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	Mitchell	Pat	30061 East Highway 58 Barstow , CA 92311		
	Morgan	Chuck	P.O. Box 18 Mountain Pass , CA 92366	P963 168 176	11/30/99
	Morris	George	43404 Eric Drive Newberry Springs , CA 92364		
	Morris	Lawana	43404 Eric Drive Newberry Springs , CA 92364		
	Morton	Charles	5984 Huason Avenue San Bernardino , CA 92404	P963 168 177	11/26/99
	Murphy	Stanley	P.O. Box 2357 Wrightwood , CA 92397	P963 168 179	11/26/99
	Myers	Tom	200 Bartlett Street Reno , NV 89512	P963 168 435	12/02/99
	Napoles	Anna	12 Meadow Drive San Rafael , CA 94903	P963 168 503	11/26/99
	Springer Nee	Imelda	1505 McCall Street Ridgecrest , CA 93555	P963 168 502	11/26/99
	Ochsner	Robert	1934 Port Edward Newport Beach , CA 92660	P963 168 436	12/01/99
	Olson	Joseph	5084 Santa Susana Place Santa Barbara , CA 93111	P963 168 510	11/24/99
	Ostertag	George	95 Cianci Road New Britain , CT 06053	P963 168 433	11/27/99
	Ovellette	Brian	4646 Berkley Avenue Yucca Valley , CA 92284	P963 168 319	12/03/99
	Overson	Clay	Kessler Springs Allotment P.O. Box 8 Cima , CA 92323		
	Overson	Gary	Kessler Springs Allotment P.O. Box 6 Cima , CA 92323	P963 168 353	11/26/99
	Overson	Linda	Kessler Springs Allotment P.O. Box 6 Cima , CA 92323	P963 168 368	11/26/99
	Overson	Sandra	Kessler Springs Allotment P.O. Box 8 Cima , CA 92323	P963 168 317	11/26/99
	Pancoast	Henry	1715 Channing Way Berkeley , CA 94703		
	Paparich	Frank	P.O. Box 9 Northport , WA 99157	P963 168 367	11/29/99
	Patrone	Rosalind	43544 Bryant Street Fremont , CA 94539	P963 168 351	11/29/99
	Payne	Marshall	34071 Pequito Drive Dana Point , CA 92629	P963 168 313	11/27/99
	Plank	Oren	416 North Grove Avenue Ontario , CA 91764	P963 168 312	11/26/99
	Powell	Mark	P.O. Box 210 Searchlight , NV 89046	P963 168 499	11/29/99
	Ragsdale	Wilifred	2990 Maiden Lane Altadena , CA 91001	P963 168 498	11/29/99
	Riddle	Don	P.O. Box 105 Amboy , CA 92304	P963 174 446	12/02/99
	Riippi	George	P.O. Box 5384 Beverly Hills , CA 90213		
	Ross	Hope	P.O. Box 720204 Pinon Hills , CA 92372	P963 168 495	12/06/99
	Ross	Victor	P.O. Box 911 Tonopah , NV 89049	P963 168 491	12/02/99
	Ryba	Gail	Caltech Chemistry 127-72 Pasadena , CA 91125		
	Salisbury	Ralph	2995 Floral Avenue Riverside , CA 92507-3217	P963 168 399	11/29/99
	Savage	William	5130 Georgetown Avenue San Diego , CA 92110	P963 168 525	11/26/9
	Schmelzer	Robert	4512 Varain Road Mariposa , CA 95338	P963 168 472	11/27/99
	Schoen	Mark	17500 Gilmore Street Van Nuys , CA 91406	P963 168 523	11/26/99

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	Schuilling	Erna	3577 Lugo Avenue San Bernardino , CA 92404	P963 168 473	11/29/99
	Sebastian	Carol	P.O. Box 1530 Running Springs , CA 92382		
	Sesher	Thada	1220 West San Bernardino Apartment 115 Covina , CA 91722-3534	P963 168 534	11/30/99
	Singh Khalsa	Mha Atma	1536 Crest Drive Los Angeles , CA 90035		
	Singleton	Larry	25019 East Seventh Street San Bernardino , CA 92410	P963 168 513	12/24/99
	Smith	Gene	11973 San Vicente Blvd. Los Angeles , CA 90049	P963 168 391	11/29/99
	Smith	William	4584 Adobe Road Twentynine Palms , CA 92277	P963 168 478	11/26/99
	Smithey	Joseph	8247 Adams Street Lemon Grove , CA 92045	P963 168 390	11/29/99
	Soto	S.B.	449 F Street Box 434 Needles , CA 92363		
	Soto	William	4792 Kermath Street Placentia , CA 92870	P963 168 376	11/26/99
	Speck	Gary	P.O. Box 1328 Moreno Valley , CA 92556-1328	P963 168 389	11/27/99
	Spenser	Eugene	151 North Areden Blvd. Los Angeles , CA 90004	P963 168 375	11/26/99
	Stebbins	Robert	601 Plateau Drive Kensington , CA 94708	P963 168 387	11/27/99
	Strain	James	1920 Underwood Road Holtville , CA 92250	P963 168 388	11/26/99
	Taylor	Joanne	1800 South Sunrise Way Palm Springs , CA 92204-0170	P963 168 381	11/26/99
	Teal	Roger	1124 Las Lanas lane Fullerton , CA 92633		
	Thaw	Steven	30 Woodside Drive Moraga , CA 94556	P963 168 395	11/29/99
	Toy	Don	P.O. Box 707 Needles , CA 92363	P963 168 383	12/02/99
	Tracey	Andy	1104 Morse Avenue Sacramento , CA 95864	P963 168 493	12/01/99
	Tracey	Jim	1801 Las Lanas Lane Fullerton , CA 92633	P963 168 393	11/26/99
	Trout	Lewis	930 Crescent Drive Barstow , CA 92311	P963 174 438	12/01/99
	Veelik	John	P.O. Box 210 Crestline , CA 92325		
	Watson	Gordon	711-1483 Larney's Mill Road Vancouver , BC V6H 3Y7		
	Wheat	Frank	333 Grand Avenue 46th Floor Los Angeles , CA 90071	P963 173 755 P963 168 270	12/29/99 11/26/99
	White	George	804 North Beaver Street Flagstaff , AZ 86001		
	Wright	Jeff	P.O. Box 2341 San Bernardino , CA 92506		
	Yoder	Merle	9066 Monte Vista Montclair , CA 91763	P963 168 284	11/29/99
	Young	Malua	Pacific 17 444 South Flower Street, Suite 2300 Los Angeles , CA 90071	P963 168 278	11/29/99
Agua Caliente Band of Cahuilla Indians	Milanovich	Richard	600 East Tahquitz Canyon Way Palm Springs , CA 92262	P963 168 479	11/29/99
All American Pipeline Operating Company	Madden	Mike	10000 Ming Avenue Bakersfield , CA 93309	P963 168 173	11/29/99
American Motorcycle Association			P.O. Box 6114 Westerville , OH 43081	P963 168 405	12/01/99
Anaheim Public Library			500 West Broadway Anaheim , CA 92805		

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Group	Last Name	First Name	Address	Certified Mail	Date Receive
Animal Protection Institution of AM	Whitaker	Nancy	P.O. Box 22505 Sacramento , CA 95822	P963 168 269	12/01/99
Archaeological Survey Association	Simpson	Ruth	35080 Chandler Suite 47 Calimesa , CA 92320	P963 168 516	11/30/99
Assembly Natural Resources Committee	Craven	Bill			
Audubon Society			2024 Orange Tree Lane Redlands , CA 92374		
Audubon Society			5370 Riverview Drive Rubidoux , CA 92509	P963 168 106	12/01/99
Augustine Reservation	Martin	Maryann	North Hargrave Banning , CA 92220		
Baker Chamber of Commerce	Dougherty	Shirley	P.O. Box 131 Baker , CA 92311		
Baker Community Services District	Fisher	Kelly	P.O. Box 590 Baker , CA 92309		
Baker Community Services District	Hayes	Lee	P.O. Box 590 Baker , CA 92309	P963 168 127	11/29/99
Baker High School Library	Acosta	Kelly	Highway 120 & School Road Baker , CA 92309	P963 168 423	11/30/99
Baker Unified School District			P.O. Box 460 Baker , CA 92309	P963 168 415	11/29/99
Barrick Bullfrog Inc.	Ludwick	W	P.O. Box 519 Beatty , NV 89003	P963 168 172	11/29/99
Barstow Development Corporation	Gilliam	Jim	1110 Buena Vista Barstow , CA 92311	P963 174 450	12/07/99
Basic Management, Inc.	Stewart	Dan	P.O. Box 2065 Henderson , NV 89009	P963 174 442	12/01/99
Bay Institute	Bobker	Gary	55 Shaver Street San Rafael , CA 94901	P963 174 461	12/01/99
Best in the Desert Racing	Folks	Casey	3475 Boulder Highway Las Vegas , NV 89120		
Best, Best & Krieger	Thomas	Anne	3750 University Avenue Suite 400 Riverside , CA 92501	P963 168 382	11/27/99
Bighorn Institute	Deforge	James	P.O. Box 262 Palm Desert , CA 92261	P963 168 165	11/26/99
Broadbent & Associates, Inc.	Roy, P.E.	Lonnie	833 Nevada Highway Suite Four Boulder City , NV 89005	P963 168 527	11/29/99
Brubaker-Mann, Inc.	Mann	Bill	30 Hilltop Terrace Barstow , CA 92311	P963 168 347	11/26/99
CA 4WDC	Baker, Jr.	Harry	5004 Enfield Avenue Encino , CA 91316	P963 168 008	11/24/99
CA 4WDC	Fite	Ron	1205 E. 25th Street San Bernardino , CA 92404		
CA 4WDC	MacPherson	R.S.	3660 Valencia Hill Drive Riverside , CA 92507		
CA 4WDC	Winters	Paul	P.O. Box 401725 Hesperia , CA 92340	P963 168 286	11/26/99
Cabazon Band of Mission Indians	James	John	84-245 Indio Springs Drive Indio , CA 92201	P963 168 185	11/26/99
California Attorney General's Office	Rechtschaffen	Cliff	350 McAllister Street Room 6000 San Francisco , CA 94102	P963 168 497	
California Communities Against Toxics	Williams	Jane	P.O. Box 845 Rosamond , CA 93560	P963 173 735	12/17/99
California Department of Fish & Game	Broddrick	Ryan	1416 Ninth Street Suite 1205 Sacramento , CA 95814	P963 168 036	11/29/99
California Department of Fish & Game	Davis	Donna	P.O. Box 401602 Hesperia , CA 92340	P963 168 166	11/30/99
California Department of Fish & Game	Decker	Jenny	1416 Ninth Street Suite 1205 Sacramento , CA 95814	P963 168 199	11/29/99
California Department of Fish & Game	Golden	Michael	1220 South Street Sacramento , CA 95814		
California Department of Fish & Game	Hayes	Chris	P.O. Box BD Blythe , CA 92225	P963 168 004	11/29/99

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California Department of Fish & Game	Hoover	Frank	4775 Bird Farm Road Chino , CA 91709		
California Department of Fish & Game	Jackson	Tom	P.O. Box 1006 Needles , CA 92363	P963 168 457	11/26/99
California Department of Fish & Game	Jones	Rebecca	330 Golden Shore Suite 50 Long Beach , CA 90802	P963 168 407	11/24/99
California Department of Fish & Game	McBride	Mike	330 Golden Shore Suite 50 Long Beach , CA 90802	P963 168 345	11/24/99
California Department of Fish & Game	Paznokas	William	4949 Viewridge Avenue San Diego , CA 92123	P963 168 314	11/29/99
California Department of Fish & Game	Showers	David	1416 Ninth Street Room 1341 Sacramento , CA 95814	P963 168 530	11/29/99
California Department of Fish & Game	Spruill	Jack	330 Golden Shore Suite 50 Long Beach , CA 90802	P963 168 378	11/29/99
California Department of Fish & Game	Vernoy	Bob	15786 Inyo Street Victorville , CA 92393	P963 168 258	11/26/99
California Department of Fish & Game	Wolfe	Patti	330 Golden Shore Suite 50 Long Beach , CA 90802	P963 168 280	11/29/99
California Department of Health Services	Underwood	Marilyn	5900 Hollis Street Suite E Emeryvill , CA 94608		
California Department of Justice	Carter	Bill	213 Spring Street 13th Floor Los Angeles , CA 90013	P963 168 074	11/24/99
California Department of Justice	Johns	Joseph	213 Spring Street 13th Floor Los Angeles , CA 90013	P963 168 456	11/29/99
California Department of Justice	Robinson	Don	300 South Spring Street Suite 5212 Los Angeles , CA 90013	P963 168 355	12/01/99
California Department of Transportation	Dennis	Richard	464 West Fourth Street Sixth Floor San Bernardino , CA 92401	P963 168 288	11/29/99
California Department of Transportation	Hendrix	Oscar	464 West Fourth Street Sixth Floor San Bernardino , CA 92401	P963 168 122	11/29/99
California Department of Transportation	Hogue	Douglas	464 West Fourth Street Sixth Floor San Bernardino , CA 92401	P963 168 192	11/29/99
California Department of Transportation	Pokrajac	Kevin	464 West Fourth Street Sixth Floor San Bernardino , CA 92401	P963 168 500	11/29/99
California Department of Transportation	Visbal	Guy	464 West Fourth Street Sixth Floor San Bernardino , CA 92401	P963 168 262	11/29/99
California Department of Water Resources	Knoop	Vern	770 Fairmont Avenue Suite 102 Glendale , CA 91203-1035	P963 174 441	12/01/99
California Department of Water Resources	White	Charles	770 Fairmont Avenue Suite 102 Glendale , CA 91203-1035	P963 174 437	12/01/99
California Farm Bureau Federation	Pauli	William	2300 River Plaza Drive Sacramento , CA 95833	P963 174 451	12/01/99
California Farm Bureau Federation	Warmerdam	MaryAnn	1127 11th Street Suite 626 Sacramento , CA 95814	P963 174 432	12/02/99
California Highway Patrol	Gaul	Dennis	300 East Mountain View Barstow , CA 92311	P963 168 119	11/29/99
California Highway Patrol	Kashdooli	John	2555 First Avenue Sacramento , CA 95818	P963 168 409	11/29/99
California League of Conservation Voters	Allgood	David	10780 Santa Monica Blvd. Suite 210 Los Angeles , CA 90025	P963 174 544	12/02/99

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California Mining Association	Jones	Denise	One Capitol Mall Suite 220 Sacramento , CA 95814	P963 168 455	11/29/99
California Native Plant Society	Barnes	Allen	1722 'J' Street Suite 217 Sacramento , CA 95814	P963 168 014	11/29/99
California Native Plant Society	Latting	June	320 Naravilla Drive Riverside , CA 92507	P963 174 462	12/02/99
California Regional Water Quality Control Board	Baqai	Hisam	15428 Civic Drive Suite 100 Victorville , CA 92392-2383	P963 168 020	11/29/99
California Regional Water Quality Control Board	Dodds	Robert	2501 Lake Tahoe Blvd. Lake Tahoe , CA 96150	P963 168 287	12/01/99
California Regional Water Quality Control Board	Haile	Abdi	73-720 Fred Waring Drive Suite 100 Palm Desert , CA 92260	P963 168 140	11/29/99
California Regional Water Quality Control Board	Lafferty	Liz	15428 Civic Drive Suite 100 Victorville , CA 92392-2383	P963 168 442	11/29/99
California Regional Water Quality Control Board	Mitton	Cindy	15428 Civic Drive Suite 100 Victorville , CA 92392-2383	P963 168 431	11/29/99
California Regional Water Quality Control Board	Plaziak	Mike	15428 Civic Drive Suite 100 Victorville , CA 92392-2383	P963 168 374	11/29/99
California Regional Water Quality Control Board	Shifrer	Curt	15428 Civic Drive Suite 100 Victorville , CA 92392-2383	P963 168 475	11/29/99
California Regional Water Quality Control Board	Singer	Harold	2501 Lake Tahoe Blvd. Lake Tahoe , CA 96150	P963 168 477	12/01/99
California State Lands Commission			100 Howe Avenue Suite 100 Sacramento , CA 95825	P963 168 088	11/29/99
California State Lands Commission	Fong	Jeff	100 Howe Avenue Suite 100 Sacramento , CA 95825	P963 168 047	11/29/99
California State Lands Commission	Mount, II	Paul	200 Oceangate 12th Floor Long Beach , CA 90802	P963 168 505	11/24/99
California State Polytechnic University, Pomona	Blumner	Sidney	3801 West Temple Avenue Pomona , CA 91768	P963 168 057	11/29/99
California State University, Fullerton			P.O. Box 4150 Fullerton , CA 92634	P963 168 059	11/24/99
California State University, Fullerton	Presch	William	P.O. Box 6850 Fullerton , CA 92634	P963 168 310	11/29/99
California State University, Fullerton	Scherba	Gerald	Fullerton , CA 92634	P963 168 532	11/29/99
California State University, Sacramento			2000 Jed Smith Drive Sacramento , CA 95819		
California State University, San Bernardino	Clark	Michael	5500 University Parkway San Bernardino , CA 92407	P963 168 069	11/29/99
California Water Resources Control Board	Anton	Edward	2014 'T' Street Suite 130 Sacramento , CA 95814	P963 168 406	11/29/99
California Water Resources Control Board	Stubchaer	Jim	2014 'T' Street Suite 130 Sacramento , CA 95814	P963 168 380	11/29/99
California Wilderness Coalition	Henson	Ryan	P.O. Box 293 Shingleton , CA 96088		
California Wildlife Federation	Walker	Randy	P.O. Box 1527 Sacramento , CA 95812-1527		
California Woolgrowers Association			1221 'H' Avenue Suite 101 Sacramento , CA 95814	P963 168 107	11/29/99
Californians for Alternatives to Toxics	Harper	Nina	P.O. Box 119 Arcata , CA 95518		
Cashman Equipment Company	Shearer	Robert	P.O. Box 4217 Las Vegas , NV 89127	P963 168 521	11/30/99
Ceminex Ltd.	Foss	Harold	3083 Zane Circle Las Vegas , NV 89121	P963 168 139	11/26/99

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Chapman, Wood & Griswold, Inc.	Irving	Doug	4015 Carlisle Blvd. Northeast Suite E Albuquerque , NM 87107	P963 168 194	11/29/99
Chemehuevi Indian Reservation	Levias, Sr.	Matthew	P.O. Box 1976 Havasu Lake , CA 92363	P963 168 170	12/01/99
Chemehuevi Indian Reservation	Smith	Edward	P.O. Box 1976 NPO #364 Havasu Landing , CA 92363		
City of Needles	Duncan	Tim	817 Third Street Needles , CA 92363	P963 168 149	12/09/99
Clark County Library			1401 East Flamingo Las Vegas , NV 89109		
Clayton Group Services, Inc.	Leu	David	3611 South Harbor Blvd. Suite 260 Santa Ana , CA 92704	P963 168 363	11/24/99
Colorado River Reservation	Eddy Jr.	Daniel	Route One Box 23-B Parker , AZ 85344	P963 168 159	11/29/99
Committee for Protection of Rural Independence	Giesing	Frank	P.O. Box 681 Joshua Tree , CA 92252	P963 168 133	11/29/99
Committee to Bridge the Gap	Lyou	Joe	1637 Butler Avenue Los Angeles , CA 90025	P963 168 444	12/01/99
Communities for a Better Environment	Kuhn	Scott	500 Howard Street Suite 506 San Francisco , CA 94105	P963 168 449	11/29/99
CORVA	Waldehim	Ed	3500 Foothill Boulevard Glendale , CA 91214	P963 168 261	11/29/99
County of Riverside	Barnhart	David	P.O. Box 1090 Riverside , CA 92502	P963 168 022	11/29/99
County of Riverside	Laurence	Aleta	P.O. Box 1409 Riverside , CA 92502-1409	P963 168 167	11/29/99
County of Riverside	Smith	Larry	P.O. Box 512 Riverside , CA 92502	P963 168 385	11/30/99
County of Riverside	Wright	Jim	210 West San Jacinto Street Perris , CA 92570	P963 168 277	11/29/99
County of Riverside	Zappi	David	1995 Market Street Riverside , CA 92501	P963 168 282	11/29/99
County of San Bernardino			157 West Fifth Street 2nd Floor San Bernardino , CA 92415		
County of San Bernardino	Clerk of the Board		385 North Arrowhead Avenue 2nd Floor San Bernardino , CA 92415	P963 168 067	11/29/99
County of San Bernardino	Crutzinger	Jackson	385 N. Arrowhead Avenue 2nd Floor San Bernardino , CA 92415		
County of San Bernardino	Davis	Carol	385 N. Arrowhead Avenue San Bernardino , CA 92415		
County of San Bernardino	Givens	Gary	P.O. Box 60 Star Route One Joshua Tree , CA 92252		
County of San Bernardino	Glass	Paul	15505 Civic Drive Victorville , CA 92392	P963 168 095	11/29/99
County of San Bernardino	Hills	Peter	157 West Fifth Street Second Floor San Bernardino , CA 92415		
County of San Bernardino	Jeska	John	15505 Civic Drive Victorville , CA 92392		
County of San Bernardino	Lawerence	Laura	385 N. Arrowhead Avenue San Bernardino , CA 92415		
County of San Bernardino	Layaye	Edward	777 E. Rialto Avenue San Bernardino , CA 92415	P963 168 168	11/29/99
County of San Bernardino	Penrod	Gary	655 East Third Street San Bernardino , CA 92415		
County of San Bernardino	Reeder	Wes	385 North Arrowhead Avenue Fifth Floor San Bernardino , CA 92415	P963 168 304	12/02/99
County of San Bernardino	Smith	Len	P.O. Box 2059 Barstow , CA 92312		

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County of San Bernardino	Stevens	Mark	385 N. Arrowhead Avenue 2nd Floor San Bernardino , CA 92415		
County of San Bernardino	Wiedeman	Delvin	635 East Third Street San Bernardino , CA 92415		
CRIT Elders Group	Harper	Mamie	Route One Box 23-B Parker , AZ 85344	P963 168 321	11/29/99
Crowell & Moring	McCrum	Timothy	1001 Pennsylvania Avenue Northwest Washington , DC 20004	P963 168 484	12/01/99
Dames & Moore	Fuller	Jeff	9665 Chesapeake Drive Suite 201 San Diego , CA 92123	P963 168 135	11/24/99
Delta Wetlands	Winther	John	3697 Diablo Blvd. Suite 100 Lafayette , CA 94549	P963 168 276	11/29/99
Desert Protection Council	Allen	Harriet	3750 El Canto Drive Spring Valley , CA 91977	P963 168 417	11/26/99
Desert Protection Council	Allen	Howard	3750 El Canto Drive Spring Valley , CA 91977	P963 168 422	11/26/99
Desert Protection Society	Karsh	Richard	73790 'B' Paso Suite 3200 Palm Desert , CA 92260	P963 168 187	11/27/99
Desert Studies Center			P.O. Box 490 Baker , CA 92309	P963 168 338	12/01/99
Desert Studies Center	Fulton	Roger	P.O. Box 490 Baker , CA 92309	P963 168 117	11/29/99
Desert Survivors	Tabor	Steve	P.O. Box 20991 Oakland , CA 94620-0991	P963 168 354	11/30/99
Ecology & Environment	Angus	Tom	333 Southwest Fifth Avenue Suite 609 Portland , OR 97204		
Ecology & Environment	Karpowicz	Ron	350 Sansome Avenue Suite 300 San Francisco , CA 94104	P963 168 453	11/29/99
Ecology & Environment	Moy	Colin	350 Sansome Avenue Suite 300 San Francisco , CA 94104	P963 168 178	11/29/99
Educational Communications	Harlowe	Anna	P.O. Box 351419 Los Angeles , CA 90035-9119	P963 168 142	11/29/99
Engineering-Science, Inc.	Artz	Matthew	P.O. Box 7107 Pasadena , CA 91109	P963 168 080	11/24/99
ENSR	Gorham	William	1220 Avenida Acaso Camarillo , CA 93012	P963 168 326	11/24/99
Environmental Defense Fund	Graff	Tom	5655 College Avenue Oakland , CA 94618	P963 174 447	12/01/99
Environmental Water Caucus	Olsen	Jenna	85 Second Street Second Floor San Francisco , CA 94105	P963 174 457	12/02/99
Euro-Nevada Mining Corporation, Inc.	Cartwright	Michael	6121 Lakeside Drive Suite 105 Reno , NV 89511	P963 168 048	11/29/99
Explorations, Inc.	Hahn	Larry	2908 East Lake Mead N. Las Vegas , NV 89030	P963 168 324	11/26/99
Gold Standard Lode Mine	Davis	Dick	37094 Colby Avenue Barstow , CA 92311	P963 168 200	11/29/99
Golden Quail	Redden	Colin	518 Ivanpah Road Nipton , CA 92364	P963 168 356	12/13/99
Grazing Advisory Board	Blair	Howard	P.O. Box 8 Essex , CA 92332	P963 168 072	11/29/99
Grazing Advisory Board	Munoz	Frank	P.O. Box 5306 Oildale , CA 93388	P963 168 434	12/06/99
Gresham, Varner, Savage, Tilden & Nolan	Tilden	William	600 North Arrowhead Suite 300 San Bernardino , CA 92401	P963 168 494	11/29/99
Heal The Bay	Gold	Mark	2701 Ocean Park Blvd. Suite 150 Santa Monica , CA 90405	P963 174 449	11/30/99

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Heal The Bay	Green	Dorothy	2701 Ocean Park Blvd. Suite 150 Santa Monica , CA 90405	P963 174 445	11/30/99
High Desert Multiple-Use Coalition	Schiller	Ron	P.O. Box 1167 Ridgecrest , CA 93555	P963 168 524	11/26/99
High Desert Regional Economic	Rector	Ron	P.O. Box 350 Victorville , CA 92393	P963 174 560	12/03/99
Holme, Roberts & Owen	Mason	Michael	1700 Lincoln Street Suite 4100 Denver , CO 80203	P963 168 346	11/29/99
HQ-USAF/LEEV			Bolling AFB Building 516 Washington , DC 20330	P963 168 084	11/26/99
Industrial Construction Inc.	Rudy	Thomas	2033 Pommel Avenue Las Vegas , NV 89119		
Isaac Walton League			19001 Valley Drive Villa Park , CA 92667		
J & M Service	Proctor	Jim	25183 Johnson Street Barstow , CA 92311	P963 168 372	11/26/99
Joshua Tree National Park Association	Freter	John	9428 Joshua Lane Yucca Valley , CA 92284	P963 168 051	12/08/99
Kearns & West, Inc.	Ebrahim	Sharif	235 Pine Street Suite 1675 San Francisco , CA 94104	P963 168 148	12/01/99
Lake Mead National Recreation Area	Haley	Jennifer	601 Nevada Highway Boulder City , NV 89005	P963 168 104	11/26/99
Lake Mead National Recreation Area	Newton	Alia	601 Nevada Highway Boulder City , NV 89005	P963 168 501	11/26/99
Las Vegas Piute Tribe	Anderson	Kenny	One Piute Drive Las Vegas , NV 89106	P963 168 403	11/29/99
Laser Inc.	Williams	John	12770 Southwest Foothill Drive Portland , OR 97225	P963 168 275	11/26/99
Living Desert	Anderson	Kirk	47900 Portola Palm Desert , CA 92260	P963 168 056	11/26/99
Long Beach Public Library			Ocean and Pacific Avenue Long Beach , CA 90802	P963 168 082	11/24/99
Los Angeles Area Chamber of Commerce	Zusman	Anita	350 South Bixel Street Los Angeles , CA 90017	P963 174 435	11/30/99
Los Coyotes Reservation	Taylor	Frank	P.O. Box 100 Warner Springs , CA 92086	P963 168 396	11/26/99
Mariah Associates	Kling	Craig	605 Skyline Drive Laramie , WY 82070	P963 168 411	11/29/99
McDaniel / Lambert	Lambert	Chuck	1608 Pacific Avenue Suite 201 Venice , CA 90291	P963 168 447	11/24/99
Mills College	Pavlik	Bruce	Oakland , CA 94613	P963 168 366	11/29/99
Mineral Policy Center	Hocker	Philip	20 West Champman Street Alexandria , VA 22301	P963 168 120	12/01/99
Moapa Paiute Tribal Council	Tom	Eugene	P.O. Box 56 Moapa , NV 89025	P963 168 394	11/29/99
Moapa Piute Tribe	Mike	Rosalyn	P.O. Box 340 Moapa , NV 89025	P963 168 328	11/29/99
Mojave Desert Air Quality Management District	Ihenacho	Christian	15428 Civic Drive Suite 200 Victorville , CA 92392	P963 168 184	11/29/99
Mojave Desert Air Quality Management District	Ramirez	Victor	15428 Civic Drive Suite 200 Victorville , CA 92392	P963 168 371	11/29/99
Mojave Desert Resource Conservation District			18484 Highway 18 Suite 195 Apple Valley , CA 92307		
Mojave Desert Resource Conservation District	Bell	Chuck	18484 Highway 18 Suite 195 Apple Valley , CA 92307		
Mojave Desert Resource Conservation District	Johnson	Paul	10456 Deep Creek Road Apple Valley , CA 92308	P963 174 558	12/01/99
Mojave National Preserve	Garner	Welford	707 West Broadway Needles , CA 92363	P963 168 099	11/26/99
Mono County Planning Department	Boardman	Rich	P.O. Box 8 Bridgeport , CA 93517		

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Morongo Band of Mission Indians	Napolitano	Mike	49020 Seminole Drive Cabazon , CA 92220	P963 168 438	11/26/99
Morongo Basin Conservation Association	Reilly	Susan	P.O. Box 218 Twentynine Palms , CA 92277	P963 174 448	12/08/99
Morongo Basin Conservation Association	Tucker	Janice	6605 LaLune Avenue 29 Palms , CA 92277	P963 174 436	12/08/99
Morongo Basin Regional Economic Development Consortium	Pulliam	James	6162 Rotary Way P.O. Box 1398 Joshua Tree , CA 92252	P963 174 559	12/01/99
Morongo Reservation	Andreas	Mary Ann	Petrero Road Banning , CA 92220		
Motorcyle Racing Association of Nevada	Maichle	Robert	4221 West Arby Avenue Las Vegas , NV 89118	P963 168 348	12/03/99
National Outdoor Coalition	Brashear	Marie	10500 Christenson Avenue Suite A Lucerne Valley , CA 92356	P963 168 016	12/01/99
National Park Service			1849 'C' Street Northwest Room 2749 Washington , DC 20240		
National Park Service	Anderson	Dave	222 East Main Street Suite 202 Barstow , CA 92311	P963 168 466	11/29/99
National Park Service	DeGraf	Joan	12795 West Alameda Parkway P.O. Box 25287, Rt. DSC-RP Denver , CO 80225-0281		
National Park Service	Demarest	Chip	600 Harrison Street Suite 515 San Francisco , CA 94107		
National Park Service	McGuinness	Sean	222 East Main Street Suite 202 Barstow , CA 92311	P963 168 483	11/29/99
National Park Service	Moss	Kerry	12795 West Alameda Parkway P.O. Box 25287, Rt. DSC-RP Denver , CO 80225-0281	P963 168 429	11/29/99
National Park Service	Sayon	Chuck	600 Harrison Street Suite 515 San Francisco , CA 94107	P963 168 471	11/29/99
National Park Service	Turnbull	George	600 Harrison Street Suite 515 San Francisco , CA 94107	P963 168 384	11/29/99
National Parks Conservation Association	Huse	Brian	P.O. Box 1289 Oakland , CA 94604-1289	P963 168 193	12/01/99
National Wildlife Federation	Alberswerth	David	1400 16th Street Northwest Washington , DC 20036	P963 168 468	11/29/99
Native American Heritage Commission	McNulty	Gail	915 Capitol Mall Room 364 Sacramento , CA 95814	P963 168 342	11/29/99
Native American Heritage Commission	Meyers	Larry	915 Capitol Mall Room 364 Sacramento , CA 95814	P963 168 480	11/29/99
Natural Resources Conservation Service	Bullard	Gary	430 'G' Street Davis , CA 95616	P963 168 007	11/27/99
Natural Resources Defense Council	Cohen	Ronnie	71 Stevenson Street Suite 1825 San Francisco , CA 94105	P963 174 456	12/03/99
Needles Desert Wildlife Association	Raley	Jim	1932 Luna Vista Needles , CA 92363	P963 168 309	11/27/99
Needles Utilities	Chesney	Bob	P.O. Box 455 Needles , CA 92363		
Needles Utilities	Claypool	Bill	212 'H' Street Needles , CA 92363		
New Mexico Tech	Griswold	George	Socorro , NM 87801		
Noble Metal Laboratory	Mangione	Tom	P.O. Box 337 Highland , CA 92346	P963 168 350	11/27/99
Office of Deputy A/S of USAF			Room 4C916, Pentagon Washington , DC 20330		

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Office of Mine Reclamation	Pompy	Jim	801 'K' Street MS 09-06 Sacramento , CA 95814	P963 168 311	11/29/99
Onyx Ranch	Rudnick	Richard	P.O. Box 120 Bakersfield , CA 93302	P963 168 490	11/30/99
Orcutt Mineral Society Inc.	Lingerfelt	Wes	110 West Bennett Street Nipomo , CA 93444	P963 168 445	11/26/99
Orrick, Herrington & Sutcliffe	Kari	Douglas	777 South Figueroa Street Suite 3200 Los Angeles , CA 90017	P963 168 408	11/29/99
Pacific Institute for Development, Environment & Security	Gleick	Peter	654 13th Street Preservation Park Oakland , CA 94612	P963 168 123	11/29/99
Pacific Mining Council	Ouellette	Gregory	2051 Pacific Avenue Norco , CA 91760	P963 168 509	11/24/99
Palm Springs Desert Museum	Cornett	Jim	101 Museum Drive Palm Springs , CA 92267	P963 168 064	11/29/99
Parker Industrial Properties	Parker	Darryl	5351 North Sterling Center Dr. Westlake Village , CA 91361	P963 168 316	11/29/99
Parker, Milliken, Clark, O'Hara & Samuellan	Meyer	Gary	333 South Hope Street Suite 2700 Los Angeles , CA 90071-1488	P963 168 341	11/29/99
Pedro Point Technology	Miller	Al	175 Essex Way Pacifica , CA 94044	P963 168 174	11/27/99
People For the West	Veale	Barbara	32566 Sapphire Road Lucerne Valley , CA 92356	P963 168 001	11/30/99
Phantom Duck of the Desert, Inc.	McKee	Louis	7896 Kempster Avenue Fontana , CA 92335		
Planning and Conservation League	Meral, Ph.D.	Gerald	926 'J' Street Suite 612 Sacramento , CA 95814	P963 174 458	12/02/99
Planning and Conservation League	Patton	Gary	926 'J' Street Suite 612 Sacramento , CA 95814	P963 174 452	12/02/99
Primadonna Resorts, Inc.	Roshetko	Paul	31900 Las Vegas Blvd. South Primm , NV 89019	P963 168 369	11/29/99
Primadonna Resorts, Inc.	Villamor	Mike	P.O. Box 95997 Las Vegas , NV 89193-5997		
Professional Placement Group	Munoz	Margi	6033 West Century Blvd. Suite 895 Los Angeles , CA 90045	P963 168 504	12/02/99
Public Lands Institute			1350 New York Avenue Suite 300 Washington , DC 20005		
Redhorse Productions	Bruhn	Catherine	4846 West 142nd Street Hawthorne , CA 90250		
Regroupers 4WD Club	Sefton	William	1910-67 West Palmyra Orange , CA 92668		
Republic Geothermal, Inc.	Westlund	Ronald	11823 East Slauson Avenue Santa Fe Springs , CA 90670	P963 168 268	11/29/99
Riverside County Farm Bureau	Corona	Stephen	21160 Box Springs Road Suite 102 Moreno Valley , CA 92557	P963 168 038	11/29/99
Riverside Hospice	Ponnech	Sala	2060 University Avenue Suite 104 Riverside , CA 92507	P963 168 373	11/29/99
Riverside Public Library			P.O. Box 468 Riverside , CA 92502	P963 168 081	11/29/99
S.N.O.R.E.			P.O. Box 4394 Las Vegas , NV 89106	P963 168 110	11/29/99
Salt Products, Inc.	Liston	Bernie	P.O. Box 39 Desert Center , CA 92239	P963 168 361	11/26/99
San Bernardino County Farm Bureau	Throop	D.C.	210 South Riverside Avenue Rialto , CA 92376	P963 174 440	12/02/99
San Bernardino County Museum	Oles	Paul	2024 Orange Tree Lane Redlands, CA 92374	P963 173 733	11/30/99
San Bernardino County Supt. of Schools	Yasenovsky	Andy	601 North E Street San Bernardino , CA 92410	P963 168 281	11/29/99
San Bernardino Valley College	Harvey	Robert	27790 14th Street Highwood , CA 92346		

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Santa Fe Pacific Realty Corp	Craig	William	201 Mission Street San Francisco , CA 94105	P963 168 063	11/30/99
Save the Bay	Koehler	Cynthia	1600 Broadway Suite 300 Oakland , CA 94612	P963 168 214	02/05/99
Save the Bay	Nesmith	David	1600 Broadway Suite 300 Oakland , CA 94612	P963 168 511	11/29/99
Save Ward Valley	Johnson	Molly	107 'J' Street Needles , CA 92363	P963 168 195	12/09/99
Sierra Club of California	Anderson	Judy	4134 Ocean View Montrose , CA 91020		
Sierra Club of California	Burk	Peter	505 Arrowhead Avenue Suite 308 San Bernardino , CA 92401		
Sierra Club of California	Cochran	Bill	3435 Wilshire Blvd. Suite 320 Los Angeles , CA 90010-1904	P963 16041	
Sierra Club of California	Dennis	Anne	505 Arrowhead Avenue Suite 308 San Bernardino , CA 92401		
Sierra Club of California	French	Calvin	14140 Chimney Rock Road Paso Robles , CA 93446-9793		
Sierra Club of California	Miller	Jon	16638 Verano Street Hesperia , CA 92345	P963 168 432	11/26/99
Sierra Club of California	Schoedler	Jim	2137 Cooley Place Pasadena , CA 91104	P963 168 531	12/02/99
Sierra Club of California	Sease	Debbie	408 'C' Street, Northeast Washington , DC 20002		
Sierra Club of California	Silver	Larry	180 Montgomery Street Suite 1400 San Francisco , CA 94104	P963 168 529	11/30/99
Sierra Club of California	Weaver	Hazel	15252 Seneca Road #187 Victorville , CA 92392	P963 168 263	11/29/99
Society for the Conservation of Big Horn Sheep	Conti	Richard	5029 Vincent Avenue Eagle Rock , CA 90041-2220	P963 168 066	11/29/99
Society for the Protection & Care of Wildlife	Hemp	Merwyn	9960 Babbitt Avenue Northridge , CA 91325	P963 168 002	11/27/99
Southern California Mining Council	Hemp	Marv	9960 Babbitt Avenue Northridge , CA 91325	P963 168 124	11/27/99
Southwest Center for Biological Diversity			P.O. Box 7745 San Diego , CA 92107	P963 168 053	11/29/99
The Bradco Companies	Westman	Pete	P.O. Box 2710 Victorville , CA 92393-2710	P963 168 271	11/26/99
The Desert Tortoise Council	LaRue, Jr.	Edward	P.O. Box 3141 Wrightwood , CA 92397-3197	P963 168 440	11/30/99
The Nature Conservancy	Ferguson	Scott	1400 Quail Street Suite 130 Newport Beach , CA 92660	P963 174 453	12/08/99
The Nature Conservancy	McCormick	Steve	201 Mission Street Fourth Floor San Francisco , CA 94105	P963 168 335	11/29/99
The Wilderness Society	Sophor	Terry	900 17th Street, Northwest Washington , DC 20006-2506	P963 168 386	11/29/99
Torres Martinez Reservation	Belardo	Mary	Martinez Road P.O. Box 1160 Thermal , CA 92274	P963 168 010	11/29/99
Town of Joshua Tree	Upshaw	June	6465 Park Boulevard Joshua Tree , CA 92252	P963 168 392	11/29/99
Town of Yucca Valley	Bryant	Peggy	57098 Twentynine Palms Yucca Valley , CA 92284	P963 168 034	11/29/99
Tri-County Conservation League	Ballmer	Greg	P.O. Box 51127 Riverside , CA 92517	P963 168 013	12/14/99
Twentynine Palms Band of Mission Indians	Cheung	Anne	46200 Harrison Place Coachella , CA 92236	P963 174 312	12/02/99

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Twentynine Palms Chamber of Commerce	King	Blaine	6455-A Mesquite Avenue Twentynine Palms , CA 92277	P963 174 443	12/10/99
Twentynine Palms Reservation	Mike	Dean	Harrison Street Coachella , CA 92236	P963 16340	11/26/99
U.S. Army Corps of Engineers So.			1114 Commerce Street Dallas , TX 75242		
U.S. Borax	Siefke	Joe	14486 Borax Road Boron , CA 93516	P963 168 476	11/29/99
U.S. Bureau of Indian Affairs	Magee	Don	P.O. Box 2245 Palm Springs , CA 92263	P963 168 349	12/01/99
U.S. Bureau of Land Management			150 Coolwater Lane Barstow , CA 92311	P963 168 112	11/29/99
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U.S. Bureau of Land Management	Bell	Dana	5764 Campo Wk Long Beach , CA 90803		
U.S. Bureau of Land Management	Boddington	Celia	1849 'C' Street Room 406-L Washington , DC 20240		
U.S. Bureau of Land Management	Burns	Isabella	1038 Bradshaw Avenue Monterey Park , CA 91754	P963 174 429	12/01/99
U.S. Bureau of Land Management	Butler	Ray	7006 Westport Street Riverside , CA 92506	P963 174 546	12/02/99
U.S. Bureau of Land Management	Conti	Dick	5029 Vncent Avenue Los Angeles , CA 90041	P963 174 548	12/02/99
U.S. Bureau of Land Management	Crites	Buford	73-510 Fred Waring Drive Palm Desert , CA 92260-2578	P963 168 402	11/24/99
U.S. Bureau of Land Management	Davidson	Ian	4160 Chestnut Street Riverside , CA 92501	P963 174 550	12/03/99
U.S. Bureau of Land Management	Ervin	Nick	3820 Ray Street San Diego , CA 92104	P963 174 551	11/30/99
U.S. Bureau of Land Management	Ford	Karl	Building 50 Denver Federal Center Denver , CO 80406	P963 168 105	11/30/99
U.S. Bureau of Land Management	Glauz	William	Room 1534 P.O. Box 111 Los Angeles , CA 90051	P963 174 552	12/01/99
U.S. Bureau of Land Management	Hartman	Steve	4444 Longridge Avenue Sherman Oaks , CA 91423	P963 174 553	12/02/99
U.S. Bureau of Land Management	Hickman	Susan	P.O. Box 36 Yermo , CA 92398	P963 174 554	12/01/99
U.S. Bureau of Land Management	Holanda	Victor	801 'K' Street Suite 1700 Sacramento , CA 95814		
U.S. Bureau of Land Management	Lewis	Brent	Building 50 Denver Federal Center Denver , CO 80406	P963 168 362	12/01/99
U.S. Bureau of Land Management	Mills	John	2135 Butano Drive Sacramento , CA 95825	P963 168 508	11/26/99
U.S. Bureau of Land Management	Reddy	Jim	P.O. Box 825 Luncerne Valley , CA 92356	P963 174 430	12/01/99
U.S. Bureau of Land Management	Sharp	Sam	940 West Main El Centro , CA 92243	P963 174 547	12/01/99
U.S. Bureau of Land Management	Stone	Jon	P.O. Box 448 Winchester , CA 92596	P963 174 549	12/03/99
U.S. Bureau of Reclamation			P.O. Box 2507 Building 67 Denver , CO 80225	P963 168 076	11/29/99
U.S. Bureau of Reclamation			1849 'C' Street NW Washington , DC 20240-0001		
U.S. Bureau of Reclamation	Director	Regional	P.O. Box 61470 Boulder City , NV 89006	P963 168 197	11/29/99
U.S. Bureau of Reclamation	Walsh	Robert	P.O. Box 61470 400 Railroad Avenue Boulder City , NV 89006-1470	P963 174 433	12/06/99
U.S. Department of Justice	Arnold	James	312 North Spring Street Room 1165 Los Angeles , CA 90012		

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U.S. Department of the Interior	Glazer	Robin	600 Harrison Street Suite 600 San Francisco , CA 94107	P963 168 180	11/29/99
U.S. Department of the Interior	Politzer	Paul	1620 L Street NW Washington , DC 20240	P963 168 279	12/01/99
U.S. Environmental Protection Agency	Armann	Steve	75 Hawthorne Street San Francisco , CA 94105	P963 168 006	11/29/99
U.S. Environmental Protection Agency	Farrel	David	75 Hawthorne Street San Francisco , CA 94105	P963 168 128	11/29/99
U.S. Environmental Protection Agency	Geselbracht	Jeanne	75 Hawthorne Street San Francisco , CA 94105	P963 168 097	11/29/99
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U.S. Environmental Protection Agency	Nelson	William	75 Hawthorne Street MS: H-1-2 San Francisco , CA 94105	P963 168 437	11/29/99
U.S. Environmental Protection Agency	Stensby	David	75 Hawthorne Street San Francisco , CA 94105	P963 168 398	11/29/99
U.S. Environmental Protection Agency	Strassbaugh	Dan	75 Hawthorne Street Mail Code NNS-1 San Francisco , CA 94105	P963 168 397	
U.S. Fish and Wildlife Service			Washington , DC 20240		
U.S. Fish and Wildlife Service	Badgley	Anne	Portland Eastside Federal 911 NE 11th Avenue Portland , OR 97232-4181	P963 173 657	12/01/99
U.S. Fish and Wildlife Service	Helm	Roger	Portland Eastside Federal 911 NE 11th Avenue Portland , OR 97232-4181	P963 168 094	11/26/99
U.S. Fish and Wildlife Service	Lampara	Louise	2496 Portola Road, Suite B Ventura , CA 93003	P963 168 357	11/26/99
U.S. Fish and Wildlife Service	Roberts	Lisa	2496 Portola Road, Suite B Ventura , CA 93003		
U.S. Fish and Wildlife Service	Sadinski	Walt	2493 Portola Road Suite B Ventura , CA 93003	P963 168 489	11/29/99
U.S. Geological Survey	Alpers	Charles	6000 'J' Street, Placer Hall Suite 2012 Sacramento , CA 95819-6129	P963 168 401	11/29/99
U.S. Geological Survey	Klein	John	Federal Building, Room W2234 2800 Cottage Way Sacramento , CA 95825		
U.S. Geological Survey	Shulters	Michael	Federal Building, Room W2234 2800 Cottage Way Sacramento , CA 95825		
U.S. Government Printing Office			Washington , DC 20401		
U.S. Tile Corporation			P.O. Box 1509 Corona , CA 91720	P963 168 052	11/24/99
Union Bank	Schwanemann	W.	530 'B' Street Suite 500 San Diego , CA 92112	P963 168 533	12/02/99
United Mining Councils of America	Moore	Victor	26054 Highway 58 Barstow , CA 92311	P963 168 507	11/30/99
University of California Granite Mountain Preserve			P.O. Box 101 Kelso , CA 92351	P963 168 470	12/06/99
University of California Granite Mountain Preserve	Andre	Jim	P.O. Box 101 Kelso , CA 92351	P963 168 418	12/06/99
University of California, Berkeley			#6000 University of California Library Berkeley , CA 94720	P963 168 062	12/01/99
University of California, Berkeley	Bartolome	James	37 Mulford Hall Berkeley , CA 94720	P963 168 086	12/01/99

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University of California, Davis	Clawson	James	Davis , CA 95616-8514		
University of California, Davis	Orhun	Diana	Davis , CA 95616-8514	P963 168 320	11/27/99
University of California, Irvine	Collins	Kay	P.O. Box 19557 Irvine , CA 92713	P963 168 413	12/01/99
University of California, Los Angeles			405 Hilgard Avenue Los Angeles , CA 90024	P963 168 461	11/29/99
University of California, Los Angeles	Cody	Martin	405 Hilgard Avenue Los Angeles , CA 90024	P963 168 023	11/27/99
University of California, Riverside	Beaumont	Richard	P.O. Box 5900 Riverside , CA 92517	P963 168 487	11/29/99
University of California, Riverside	Hall	M.C.	Archaeological Research Unit Department of Anthropology Riverside , CA 92521-0418	P963 168 323	11/29/99
University of California, Riverside	Mayhew	Wilbur	Riverside , CA 92521-0418		
University of California, Riverside	Waser	Nickolas	Riverside , CA 92521-0418		
University of California, San Francisco			San Francisco , CA 94117	P963 168 488	11/29/99
University of California, Santa Barbara	Nash	Roderick	Santa Barbara , CA 93106	P963 168 512	11/29/99
University of California, Santa Cruz			Santa Cruz , CA 95060	P963 168 414	11/29/99
University of Redlands			1200 East Colton Avenue Redland , CA 92373	P963 168 078	11/29/99
Urban Water Institute	Clark	Wayne	Three Civic Plaza Suite 100 Newport Beach , CA 92660	P963 174 459	12/08/99
URS Consultants, Inc.	Weiner	Stephen	268 West Hospitality Lane Suite 204 San Bernardino , CA 92408	P963 168 267	11/29/99
USIU	Bainbridge	David	10455 Pomerado Road San Diego , CA 92131-1799	P963 168 018	11/29/99
Victor Valley 4-Wheel	LaGrange	Barbara	18220 Fern Road Lucerne Valley , CA 92356	P963 168 358	12/01/99
White Mountain Research Station	Wehausen	John	3000 East Line Bishop , CA 93514	P963 168 266	11/29/99

APPENDIX D

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
SIGN IN SHEET

November 29, 2000 – Twentynine Palms City Hall **PLEASE PRINT**

Name Rhys Evans
Address 6056 Bonifay Apt. A
City, State 29 Palms Zip 92277
Phone number (optional)
Organization (if applicable)

Name Elden Hughes
Address 14045 Honeysuckle
City, State Whittier Ca. Zip
Phone number (optional) 562 941 5304
Organization (if applicable) Sierra Club

Name PATRICIA L CARPENTER HUGHES
Address 19045 Honeysuckle Ln
City, State Whittier CA Zip 90604
Phone number (optional) 562 941-5304
Organization (if applicable)

Name Vern Knopp
Address 770 Fairmont Ave
City, State Glendale, Ca Zip 91203
Phone number (optional) (818) 546-3028
Organization (if applicable) State of Ca DWR

Name DAVID FICK
Address HC-1 BOX 7216
City, State JOSHUA TREE Zip 92252
Phone number (optional) (760) 366-9867
Organization (if applicable) D. E. R. T.

Name DJ Mader
Address PO Box 2272
City, State 29 Palms Zip 92277
Phone number (optional) (760) 367-7004
Organization (if applicable) MBCA, AQMD, DERT

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
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Name ROBIN CURLEY
Address Box 504
City, State 29 Palms Zip 92277
Phone number (optional) 760/361-4710
Organization (if applicable) _____

Name Alex Contreras
Address 5565 Dairy Ave
City, State 29 PALMS Zip 92277
Phone number (optional) _____
Organization (if applicable) _____

Name KENNETH LYONS
Address 72550 GRANITE AV
City, State 29 PALMS, CA. Zip 92277
Phone number (optional) _____
Organization (if applicable) _____

Name Joann Ballinger
Address P.O. Box 542
City, State Yucca Valley Zip 92286
Phone number (optional) _____
Organization (if applicable) _____

Name _____
Address _____
City, State _____ Zip _____
Phone number (optional) _____
Organization (if applicable) _____

Name _____
Address _____
City, State _____ Zip _____
Phone number (optional) _____
Organization (if applicable) _____

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Name Krista Clark
Address 910 K Street, Ste. 100
City, State Sacramento, CA Zip 95814
Phone number (optional) 916-441-4545
Organization (if applicable) Association of California Water Agencies

Name NICOLAS ULLMANN
Address POB 598
City, State CHAMBLESS Zip 92304
Phone number (optional) 310 275-8946
Organization (if applicable) — NONE —

Name M.J. "MAC" DUBE
Address 74008 SAMARKAND DR
City, State 29 PALMS CA. Zip 92277
Phone number (optional) (760) 367-3717
Organization (if applicable) CITY HALL (MAYOR PRO-TEM)

Name Bus Lizalde
Address 10327 Park Ranch Lane
City, State ~~Escondido~~ Zip 92026
Phone number (optional) 760) 751-1160
Organization (if applicable) Chambless, Ca

Name Esther L. Herbert
Address P.O. Box 249
City, State Twentynine Palms Ca Zip 92277
Phone number (optional) 760. 367-6816
Organization (if applicable)

Name Susan Reilly
Address P. O. Box 1692
City, State 29 Palms Zip
Phone number (optional)
Organization (if applicable) Desert Protection Council

CADIZ GROUNDWATER STORAGE & DRY-YEAR SUPPLY PROGRAM
SIGN IN SHEET

November 29, 2000 – Twentynine Palms City Hall **PLEASE PRINT**

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