Mojave Water Agency
Water Supply Reliability and Groundwater Replenishment Program
SC# 2005041103
Final Environmental Impact Statement

APPENDIX A
RESPONSES TO PUBLIC AND AGENCY COMMENTS

As a result of this agency and public review of the Draft EIR, MWA received oral and written comments. Comments and responses are provided in the following order:

1. Mr. Chuck Bell, written comments received during the 47-day comment period
2. Mr. Jeff Bentow, Yermo Water Company, oral comments at the November 8, 2005 public meeting and the November 9, 2005 MWA Technical Advisory Committee
3. Mr. Lou Kershberg, oral comments at the November 8, 2005 public meeting
4. Mr. Guy Patterson, written and oral comments at the November 9, 2005 MWA Technical Advisory Committee
5. Mr. and Mrs. Gary E. Thrasher, written comments received during the 47-day comment period
6. Mr. Mathew Woods, oral comments at the November 8, 2005 public meeting and written comments at the November 9, 2005 MWA Technical Advisory Committee
7. Mr. Joseph Monroe, written comment received November 17, 2005.
8. California Department of Fish and Game, Habitat Conservation Program, Region 6, Ms. Denyse Racine, Supervisor;
9. California Regional Water Quality Control Board, Lahontan Region, South Basin Regulatory Unit, Mr. Greg Cash, Engineering Geologist
10. California Department of Water Resources, State Water Project Analysis Office, Ms. Elizabeth Patterson, by email 24 October 2005.
11. County of San Bernardino, Department of Public Works, Environmental Management Division, Mr. Naresh P. Varma, Chief

In addition, the Southern California Association of Governments responded to the draft EIR indicating that they would not comment and the State Clearinghouse sent notification that it had not received comments from State of California agencies.

1. Written comments from Mr. Chuck Bell provided at the November 9, 2005 meeting of the MWA Technical Advisory Committee.

Comment: Project's potential use of Morongo Pipeline could dilute its capacity to convey water for recharge in Este for Este's future use (albeit a long-term/not short-term need). Is this an issue?

Response: Deliveries under this program to the Morongo Basin area would occur in cooperation with and utilizing the capacity available to the current Morongo Basin Pipeline participants. Consequently, no impact to the Este area under the scenario you describe is anticipated.

By email, December 4, 2005

Comment: Matthew Woods noticed a statement in the Draft EIR - P. 9-5 - Table 9-1 - Summary of Comments, April 27, 2005 TAC Meeting.

He stated that I suggested that State Water be stored in Este for MWD with eventual return to MWD. I didn't know what he was referring to until I saw a copy of the draft EIR in the LV library. He was right. It was there. (Quote c. "MWA should consider recharge in the Morongo Basin/Lucerne valley area, with returns to Metropolitan via a canal or pipeline to the Colorado Aqueduct").

Under no circumstances that I can imagine would I recommend that the Lucerne Basin be recharged for any purpose other than for OUR own use. From a hydrological, fiscal and common sense perspective, it would make no sense.

I succinctly remember the meeting and my comments. The consultant misinterpreted my comments.

I asked if the Program would include recharge of State Water (preferably cheaper surplus water when and if available) into basins other than Alto.

In a separate statement, in response for alternative options for returning Met. water to Met., I suggested the EIR (strictly for purposes of including other "paper alternatives"- far fetched as they may be) - could include an analysis of retaining the Met. water in Alto that had been recharged (stored), and conveying to Met. its fair share out of our entitlement from the aqueduct via the Morongo pipeline to Morongo - and through a pipeline (constructed by Met.) from Morongo down-gradient to Met.'s aqueduct in the Coachella Valley. (This of course assumes available capacity in the Morongo Pipeline).

The consultants ran the two issues together, thus misconstruing my comment. Easy to understand because it is an off-the-wall idea - but most EIR alternatives are. (They are mostly used to make the "preferred project" look good).

I request that this misunderstanding be corrected in the final EIR.

Response: MWA concurs that the reference in the EIR was in error, the result of combining two separate ideas into a single comment. MWA's CEQA consultant specifically apologizes to Mr. Bell for this misinterpretation. The FEIR has been revised to reflect the above comment.

2. Mr. Jeff Bentow, Yermo Water Company

Verbal comments at the public meeting at MWA headquarters on November 8, 2005, and at the November 9, 2005 meeting of the MWA Technical Advisory Committee.

Comment: Could SWP take local water?

Response: No. The SWP is not authorized to appropriate local water supplies. The proposed project involves banking of SWP supplies and then return of these supplies, either via exchange or via direct pumping of supplies back to the California Aqueduct. Because there is a "loss factor" applied to the banking and exchange program, the net effect of the proposed project will always be to increase groundwater supplies. No net take of local supplies will occur.

Comment: What are the implications of the projections that 390,000 acre-feet of water could be involved in banking?

Response: This means that over a period of 20 to 25 years, the probable maximum amount of water delivered to Mojave Water Agency from Metropolitan would be 390,000 acre-feet.

Comment: How is Unnamed Wash to be used in the project? Can this be developed further?

Response: MWA would use the Unnamed Wash to deliver water to the Mojave River. In the short-term, water would be diverted from the California Aqueduct into a temporary channel and then allowed to run down the natural wash channel, which would be minimally improved. Water would then flow under local roads and into the river. When Rancho Las Flores finalizes its plans for the area, MWA would then modify the diversion in cooperation with the developer.

3. Mr. Lou Kershberg, verbal comments at the public meeting at MWA headquarters on November 8, 2005.

Mr. Kershberg asked a number of questions related to general water supply and water quality management on the State Water Project and in the Lucerne Valley. Although many of these were not specifically related to the proposed project, MWA has responded to several specific questions below. In addition, MWA's hydrogeologist has contacted Mr. Kershberg to address his concerns about water supply and water quality in the Lucerne Valley, which would not be affected by the proposed project, regardless of alternative selected.

The two questions Mr. Kershberg directed to MWA regarding the proposed project are answered below.

Comment: Why is there a restriction on deliveries from Lake Silverwood? We need an alternative route for the SWP deliveries.

Response: The deliveries from Lake Silverwood directly to the West Fork of the Mojave River are restricted by the USFWS and CDFG from February 15 through September 15 to avoid impacts to the endangered arroyo toad. The proposed project includes an alternative delivery point (unnamed wash) for SWP supplies that would avoid this restriction.

Comment: How are we assured that the SWP won't take our water supplies?

Response: The proposed project includes a provision that returns from banking will be less than the amount delivered. This "loss factor" is applied to ensure that the amount of water banked exceeds the amount withdrawn from the bank. The agreement between MWA and any banking partner will specify this loss factor. The loss factor applied to most banking agreements has been 10%, and MWA anticipates a loss factor that fully protects local water supplies will be incorporated into any banking agreement.

4. Mr. Guy Patterson
Written comments at the November 9, 2005 MWA Technical Advisory Committee meeting.

Comment: Are there any proposals for using reclaimed water in re-charge basins, especially during the winter when reclaimed will not be needed for irrigation purposes?

Response: The proposed project does not include provisions for introduction of reclaimed water into the recharge areas described. To pursue this option, additional studies would be required to ensure that this type of use would not compromise water quality and MWA's ability to make returns to Metropolitan or other banking partners. This would require an independent CEQA review.

Comment: The super well chart and map should be revised to reflect pipeline extending to Adelanto and SCLA.

Response: The proposed project does not include new pipeline connections to Adelanto because MWA has assumed delivery to this area (as described in the Project Description) via existing connections to the new facilities described in the DEIR. If additional new pipelines are needed, they may be addressed in a separate CEQA document.

5. Mr. and Mrs. Gary E. Thrasher
14024 Sunflower Lane
Oro Grande, CA 92368
Written comment dated December 13, 2005

Comment: The concept and practice of replenishing the groundwater in the Mojave River Alto Basin is now in progress. A relatively small amount of Water (compared to the proposed amount in the afore mentioned MWA Draft project EIR) is currently being released from Silverwood Lake into the mainstem of the Mojave River. This foreign water is flowing from the release point at Cedar Springs to well past the Vista Road Bridge that spans the Mojave River at Helendale California. This flow demonstrates that foreign water discharged into the Mojave River will not all be absorbed into the upper reaches of the channel and will therefore add to and amplify the risk of flooding. The additional flood risk will be caused by the expansion of the existing Riparian Habitat areas and the raising of the riverbed floor from the materials washed downstream when floodwaters destroy the proposed water retention berms in the river channel.

Response: These releases are part of MWA's two-year pilot project. As the EIR notes, flow in the Mojave River is generally underground and this underground flow naturally wells up and becomes surface flow at the Mojave Narrows, where subsurface flow is blocked. The flow between the Mojave Narrows and Helendale is thus a result of this upwelling and occurs routinely. MWA staff have monitored the referenced releases and to date have tracked the surface flow to an area upstream of the Mojave Narrows Regional Park near Bear Valley Road. The released water is in fact being absorbed by the River channel several miles upstream of the area you mention.

The EIR (page 4-15) also notes that, in the portion of the river upstream of the Mojave Narrows, there is substantial lateral movement of water from the channel to the regional aquifer underlying Hesperia, Victorville, Apple Valley, and other areas along the river. The proposed project includes a potential well field along the river to extract this water after it has moved away from the channel. This extraction process would essentially draw groundwater levels down at each well and create a "cone of depression" into which recharged water would flow. Given that extractions from the well field are matched to the recharge rate, the net subsurface flow downstream to the narrows will be a small component of overall flow in the river. In short, groundwater flow analyses by the United States Geological Service and Bookman-Edmonston and monitoring performed by the MWA suggest that most of the recharged water will, indeed, be absorbed in the upper reaches of the river.

It is important to remember that MWA is a Party to the Mojave Basin Area Judgment. As a Party, MWA is prohibited from interfering with flood flows and has explicit responsibilities to bring supplemental water supplies into the adjudicated area to meet water supply obligations under the Judgment. These requirements are clearly articulated in the MWA Regional Water

Management Plan and the Draft EIR for the Water Supply Reliability and Groundwater Replenishment Program, which demonstrate MWA efforts to meet these responsibilities.

In addition, the berms that will be constructed in the mainstem channel will be constructed with materials from the channel itself. There will be no new material added to the channel and thus no increase in the elevation of the channel bed. The temporary berms thus do not pose a new or additional flood risk.

As a result of intercepting of most recharged flow upstream of the Narrows, the proposed project will have little effect on flows within the Narrows and downstream. The analysis of flooding (EIR Section 5-14) suggests that major floods spread out above the Narrows and there is substantial recharge occurring even during repeated floods.

Comment: Much of the existing Riparian Habitat areas were created by the discharge of treated sewage water from the VVWRA facility to the Mojave River Mainstem. This Riparian Habitat area has historically (since 1985) prevented routine flood control clearing by San Bernardino County Flood Control. In 1998 my neighbors and I sent certified letters to San Bernardino County Flood Control, requesting channel maintenance in the Oro Grande area. Mr. Jim Borcuk of San Bernardino County Transportation/Flood Control in a letter addressed to me (Gary Thrasher) on August 10, 1998, responded thusly, he wrote, *"As a result of increasingly stringent environmental regulations, the San Bernardino County Flood Control District (District) is no longer able to routinely perform clearing operations in the Mojave River as it has in the past" (italics and underscore added).* Expansion of the existing Riparian Habitat area and creation of new Riparian Habitat areas in the Mojave River Channel caused by discharge of foreign water into the channel will further hamper and degrade Flood Control operations.

Response: In Chapter 3, the EIR recognizes the general concern that recharge may raise groundwater levels above 20-40 feet and that this could affect riparian vegetation, including growth of nuisance plants such as tamarisk. However, the general capacity of recharge in the mainstem channel was defined based on a desire to avoid seismic liquefaction effects associated with high groundwater levels, and thus project operations will be managed to keep groundwater levels below those associated with liquefaction. The area described in the DEIR is also located in the Upper Mojave River channel south of Bear Valley Road and not within the area you are describing.

Comment: The "Reservoir Regulation Manual for the Mojave River Dam" http://www.spl.usace.army.mil/resreg/htcdocs/Mojave/Text.pdf (Last Revised September 1985), page 4 section 10 (DOWNSTREAM CHANNEL) spells out San Bernardino County's commitment to maintain the Mojave River Channel. After the devastating Mojave River flood event of January 11, 2005 that endangered lives, destroyed homes, county roads, and private property -- Wendy Lou, a hydraulics engineer with the U.S. Army Corps of Engineers said, "The Corps of Engineers monitored record levels of up to

16,600 cubic feet of water flowing out of the dam (Quotation from the Daily Press Dispatch newspaper dated January 16, 2005 - pages A1 &A6 -- "FLOOD VICTIMS SEARCH FOR ANSWERS" by Emily Berg). The 16,600 cfs recorded by the U.S. Army Corps of Engineers represents only about 70% of the 23,500 cfs channel flow capacity that the county assured the Army Corps of Engineers they would maintain (see the Reservoir regulation Manual for the Mojave River Dam, page 4, section 10, Downstream Channel) demonstrating that the currently un-maintained river channel is not capable of handling increased flows that could be generated by the discharge of foreign water into the mainstem of the un-maintained Mojave River Channel.

Response: The potential for the proposed project to affect flood flows is evaluated in the EIR, in Section 5.14, using data from the floods of 1983. This analysis demonstrates that, even after a flow of 11,700 cfs and an extended period of flow over 1,000 cfs, channel flows at Hesperia were 100 to 500 cfs higher than channel flows at the Lower Narrows. This indicates that, even following a major flood event, the channel continues to recharge from 200 to 1000 acre-feet of supply per day. The EIR concluded that that project recharge operations would thus not affect recharge capacity in the upstream channel or flooding in the channel downstream of the Narrows.

The EIR also notes that recharge would not occur when there was substantial natural flow in the channel, and thus recharge operations will not occur *during* periods of flooding. In fact, as the EIR explains, Metropolitan generally tends to focus its recharge operations on the period from February through July, when it is possible to predict water supply availability with some accuracy. Assuming that there was no natural flow in the Mojave River during this period, and assuming that Metropolitan delivered 48,800 acre-feet to MWA via the mainstem channel over a 6 month period, the average rate of delivery would be 271 cfs. MWA anticipates that on-going extraction of groundwater in the Mojave River Well Field will result in no net substantial increase of flow downstream of the well field and into the Narrows. In short, the effect of the proposed recharge in the Mojave River mainstem would be so small that it would be within the measurement error of the flow gauges at the Lower Narrows. The project would not therefore have a measurable effect on channel capacity during a major flood.

Comment: The afore mentioned MWA Draft Project EIR assumes that the Mojave River Channel is being maintained (see MWA Draft Project EIR @ 5.14.4.1, Significance Thresholds, page 5-163, next to last paragraph, ("<u>the floodway maintained by San Bernardino County Flood Control</u>") and could handle increased flows created by the discharge of foreign water into the channel, when in fact --- an emergency flood hazard situation already exists!

Response: The reference to San Bernardino County maintenance of the floodway was made to address the potential for off-channel recharge basins to affect the floodway in the upstream portion of the river (3 miles upstream of Rock Springs), not to address downstream issues. The point was that the recharge basins would not extend into the existing channel, which in this reach is maintained by San Bernardino County Flood Control.

Comment: Urbanization is occurring at an alarming rate, each new rooftop, driveway, parking lot and paved road is destroying the soils ability to absorb water and therefore increasing runoff load into the un-maintained Mojave River Channel. Maintaining and creating water supply for the rapidly populating Victor Valley area must be coordinated with flood control. The MWA Draft Project EIR should contain language clearly stating that MWA will coordinate with San Bernardino County Flood Control to resume and maintain routine Mojave River channel clearing operations in all portions of the channel that any discharged foreign water could conceivably reach at any time of any given year.

Response: Mr. Thrasher is correct regarding the runoff and flooding effects associated with development. MWA, however, has no authority to regulate growth and is mandated to provide supplemental supplies to local producers, who themselves operate under approved water management plans. In the Draft EIR, MWA has committed to monitoring groundwater levels in the recharge area at the beginning of the storm season and to adjusting recharge when groundwater levels rise to 20 feet below the channel surface. In addition. MWA will not be recharging when there is substantial natural flow in the river upstream of Rock Springs. Recharge cannot thus directly affect surface flows.

Most importantly, the MWA analysis in Section 5.14 shows that, even following very high flood flows, the channel upstream of the Mojave Narrows continues to recharge. Flow downstream of the Narrows is substantially lower than flow at Hesperia, demonstrating that there is substantial recharge capacity even when the channel has been thoroughly saturated. Thus, MWA does not anticipate that normal recharge operations will affect downstream flooding.

6. Mr. Mathew Woods, CBC, Inc, Lucerne Valley, CA 92356, verbal comments at the Public Meeting held at MWA Headquarters, 6-9 p.m., November 8, 2005 and written comments received at the November 9, 2005 Technical Advisory Committee meeting.

Comment: Lucerne Valley residents had not been informed of the availability of the DEIR.

Response: MWA published Notice of the Availability of the DEIR in the regional newspapers and mailed copies of the DEIR to parties which had previously indicated an interest in receiving the document.

Comment: Could MWA send a representative to discuss the water management issues in the Lucerne Valley to a December meeting?

Response: The proposed project does not involve Lucerne Valley. MWA would be pleased to receive an invitation from the Lucerne Valley Municipal Advisory Committee to attend its meetings to discuss MWA projects and issues relevant to the mission of the MWA.

Comment: How do you do an exchange?

Response: See the initial discussion of operations in Chapter 4 of the DEIR. An exchange would involve Metropolitan delivery of water to MWA, which MWA would then recharge to groundwater. When Metropolitan requested return of this banked water, MWA would rely on this banked groundwater to meet local supply needs and would give Metropolitan a portion of MWA's available State Water Project supply.

Comment: How do you monitor?

Response: All State Water Project deliveries to and from MWA are monitored continuously by MWA and California Department of Water Resources, using flow gauges.

Comment: Will the overall quality of the water table be compromised by adding so much aqueduct water?

Response: The addition of SWP supplies to the groundwater basins involved in the proposed project will in general improve water quality. See DEIR Section 5-13.

Comment: What are the cumulative impacts, long term, of the growth induced by the implementation of these recharge basins? This will dramatically impact and attract many large industrial facilities and high density projects. There is much concern of the impact will have on the lifestyle of the High Desert.

Response: Growth impacts are discussed in Section 5-15. In this discussion, MWA notes that there is no evidence that water availability drives growth in southern California, but that water

availability may accommodate growth. The DEIR notes that analysis of water supply and growth data show no relationship between growth and water supply. In addition, the proposed project does not increase available supply. Rather, it provides for increased storage of groundwater that may later be used to (a) meet demands during drought and (b) extend the time period before projected demand exceeds MWA's ability to meet it with existing supplies.

Comment: The cultural resources: Why omit "people" -- our families, our lifestyle [should be] considered a cultural resource? The question is: "What is culture? I would like to see your definition as applied?

Response: Cultural resources are defined in California and Federal law, and MWA has used these definitions. For clarification, under the California Environmental Quality Act (CEQA Guidelines Section 15064.5), cultural resources are defined as:

"(a) For purposes of this section, the term "historical resources" shall include the following:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

(b) A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.
(1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."

7. Written Comment from Mr. Joseph W. Monroe, November 17, 2005

Comment: The Program has been well thought out and presented to the water community. In particular, have been concerned about the East Alto Basin, but I see that there are provisions made from the top to the lower end.

Response: MWA appreciates Mr. Monroe's comment regarding staff efforts to cover the Alto East Basin area comprehensively.

8. Ms. Denyse Racine, Supervisor
Habitat Conservation Program
California Department of Fish and Game
Eastern Sierra-Inland Deserts -- Region 6
Bishop Field Office
Habitat Conservation Program
407 West Line Street
Bishop, CA 93514
Letter dated December 12, 2005

1. Comment: Project locations could include

- **Existing MWA facilities**
- **Mojave Forks Dam**
- **VVWD's "Green Tree" recharge facility**
- **Proposed City of Hesperia flood detention basins at Cedar Avenue and Hesperia Road**
- **Oro Grande Wash**
- **Off-Channel along the Mainstem Mojave River**
- **Recharge Basins near Sheep Creek and the Mojave River Pipeline**
- **Recharge basins south of the California Aqueduct in Antelope Wash**
- **Release of water to the Mainstem Mojave River via an unnamed wash in Summit Valley,**
- **New spreading basins in the Lucerne Valley**

Response: MWA initially considered facilities at Mojave Forks Dam and the possibility that Lucerne Valley could be involved. These potential sites were eliminated from consideration due to environmental and technical screening conducted during early phases of the program and are not included in the Proposed Project Description, Chapter 4.

2. Comment: Table 5-13. Mojave fringe-toed lizard should be included since it is found along the river in sandy areas and often in areas with mesquite. It is also a California State Species of Special Concern.

Response. We initially reviewed distribution data for the Mojave fringe-toed lizard, which shows known distribution well to the north and east of proposed project areas. In addition, according to the California R015California Wildlife Habitat Relationships System (California Department of Fish and Game California Interagency Wildlife Task Group): "The Mojave fringe-toed lizard occurs in desert regions of Inyo, San Bernardino, Los Angeles, and Riverside cos. It is restricted to fine, loose, wind-blown deposits in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert shrub habitats."

Given that CDFG mistakenly included the Lucerne Valley in its list of potential project locations, we can understand CDFG's concern about this California species of special concern. There are areas near the Lucerne valley where Mojave fringe-toed lizards have been found. There would also be potential habitat for the species in this area, where there is suitable fine, loose, windblown sand. However, the elimination of the Lucerne Valley as a potential site means that the sites actually being considered for project construction and operation are a considerable distance outside of the known range for this species.

In addition, MWA has explicitly avoided siting recharge basins in areas with the fine, wind-blown sands required for the species to escape high daytime temperatures. Sandy habitats in the Mojave River channel that will be affected by in-channel recharge are coarse and subject to surface flow, as well as being upstream of the historic distribution of the Mojave fringe-toed lizard, which was primarily between Helendale and Camp Cady (West Mojave Plan Working Group, 1999). No dune-type habitats will be affected by the project. The creosote scrub habitats that may be affected by the project have been chosen to avoid fine sandy areas such as the wash at Sheep Creek, because these areas may also be associated with subsurface layers of fines and clays, which are not suitable for groundwater recharge.

In short, there is no reasonable potential for the proposed project to affect Mojave fringe-toed lizards because (a) none of the proposed sites are within the known range of the species and (b) groundwater recharge is optimized where there are coarse sands and sandy loams, and the selection of such sites probably eliminates potential for the Mojave fringe-toed lizard. Nevertheless, as provided in the EIR, we will survey for special-status species prior to construction. If Mojave fringe-toed lizards are found during such surveys, we will notify CDFG and initiate consultation regarding appropriate avoidance and mitigation.

3. Comment: Section 5.4.1.2 -- Second paragraph. Tortoises [desert tortoise] have been found within the "no Survey Zone" of the West Mojave Plan within the past two years. Several of those sites are in Victorville. And Section5.4.1.2 -- Desert Tortoise -- The Department concurs that desert tortoise surveys will need to be conducted, pending the outcome of an approved West Mojave Plan.

Response: Based on its review of available literature, MWA was aware of the recent desert tortoise observations in north Victorville. These observations are clearly identified on Map 3-10 of the West Mojave Plan FEIR/EIS (attached). The EIR therefore explicitly referenced Highway 18 as being an apparent distributional breaking point for desert tortoise in the region (see attached Figure 3-9 from the West Mojave Plan FEIR/EIS). We could find no records in the literature of recent desert tortoise observations south of Highway 18, except for several observations near Highway 247, which is about 20 km to 30 km from potential project sites. All of the proposed facilities are south of Highway 18.

MWA also notes that since 1988 very few surveys have been conducted south of Highway 18, primarily because few tortoises have been found south of this apparent range boundary. The EIR Cites LePre (2004) regarding the apparent paucity of desert tortoise south of this highway.

Based on these considerations, MWA does not expect to find desert tortoise in pre-construction surveys, and does not anticipate that the proposed project will cause take of desert tortoise. Nevertheless, MWA appreciates CDFG's concern for this species and has committed in the EIR to perform pre-construction surveys prior to construction.

4. Comment: Section 5.4.1.2 -- Second paragraph. This section refers to the West Mojave Plan and proposed mitigation measures. At this time, the Department has not determined that the mitigation measures as proposed in the WMP are adequate to reduce impacts to less than significance, as required by CEQA. Neither has the department determined that the mitigation measures as proposed in the WMP meet the "fully mitigated" standard as required by the California Endangered Species Act (CESA).

Response: MWA concurs. The cited paragraph is in the Environmental Setting portion of the discussion of biological resources. The purpose of the reference was to note that the West Mojave Plan is a useful technical compendium of the available scientific data for the region. MWA therefore used these data as part of its impact analysis.

5. Comment: Section 5.4.1.2 -- Mohave Ground squirrel -- There was a Mohave ground squirrel (MGS) trapped this year just north of the aqueduct and west of Highway 395. Protocol surveys and trapping would need to be conducted for MGS.

Response: MWA became aware of this recent trapping during the public comment period. It does not alter the conclusions of the EIR in Section 5.4.7.1 and 5.4.7.2, which note that the species is rare in this portion of its range but that protocol surveys will be conducted prior to construction and results reported to CDFG and USFWS.

6. Comment: Section 5.4.1.3 -- Mojave fringe-toed lizard should be added to this section.

Response: See response numbered "2" above.

7. Comment: Section 5.4.5.2 -- Oro Grande Recharge Basin -- See also Comment 5 above regarding likelihood of MGS being present.

Response: As noted in the EIR Section 5.4.2.2, during drought, MGS are known to suffer local extinctions and recolonization is a feature of their life history. The proposed Oro Grande Wash recharge sites are isolated by major highways, development, and the California Aqueduct. Recolonization is unlikely, given the rarity of the MGS south of Highway 18. MWA does not anticipate MGS at this site, but notes that pre-construction surveys will be conducted.

8. Comment: Section 5.4.5.2 --page 53 --Top of Page -- See comment 3 above [Comment 4 in this list].

Response: MWA concurs. See response to comment 4.

9. Comment: Section 5.4.7.2. Second paragraph. If desert tortoise or MGS are impacted, the project will need an Incidental Take Permit from the Department.

Response: If listed threatened or endangered species are found in pre-construction surveys, MWA will report this to CDFG (and USFWS) and (a) either provide for avoidance of take or (b) initiate necessary processes to obtain an Incidental Take Permit.

10. Comment: No mitigation has been offered for impacts to burrowing owl. Burrowing owls, their nests and eggs are protected under Fish and Game Code Section 3503.5. Since they are also considered a State Species of Special Concern, with declining population levels and a diminishing range within California, impacts to their foraging, nesting, and brood-rearing habitat must also be disclosed and mitigated pursuant to CEQA. The following mitigation measures should be incorporated into the DEIR.

1.) As compensation for the direct loss of burrowing owl nesting and foraging habitat, the project proponent should mitigate by acquiring and permanently protecting known burrowing owl nesting and foraging habitat at the following ratio:

> ***a) Replacement of occupied habitat with occupied habitat at 1.5 times 6.5 acres per pair or single bird;***
>
> ***b) Replacement of occupied habitat with habitat contiguous with occupied habitat at 2 times 6.5 acres per pair or single bird; and/or***
>
> ***c) Replacement of occupied habitat with suitable unoccupied habitat at 3 times 6.5 acres per pair or single bird.***

2) The project proponent should establish a non-wasting endowment account for the long-term management of the preservation site for burrowing owls. The site shall be managed for the benefit of burrowing owls. The preservation site, site management, and endowment shall be approved by the Department.

3) All owls associated with active burrows, that will be directly impacted (temporarily or permanently) by the project, should be relocated and the following measures shall be implemented to avoid take of owls:

> ***a) Occupied burrows shall not be disturbed during the nesting season of February 1 through August 31, unless a qualified biologist can verify through non-invasive***

methods that either the owls have not begun egg laying and incubation or that juveniles from occupied burrows are foraging independently and are capable of independent flight.

b) Owls must be passively relocated by a qualified biologist from any occupied burrows that will be impacted by project activities. Passive relocation is used to exclude owls from their burrows by installing one-way doors in burrow entrances. These one-way doors allow the owl to exit the burrow, but not enter it. Suitable habitat must be available adjacent to or near the disturbance site or artificial burrows will need to be provided nearby. Once the biologist has confirmed that the owls have left the burrow, burrows should be excavated using hand tools and refilled to prevent reoccupation.

Response: MWA is aware of the protection for burrowing owls as provided in Fish and Game Code section 3503.5. ("It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.")

MWA was also aware that the mitigation guidelines cited in CDFG's comment were being prepared by University of California at Santa Cruz (Santa Cruz Predatory Bird Research Group at www2.ucsc.edu/scpbrg/owls.htm). MWA was, however, unaware that these guidelines had been formally adopted by CDFG and could not locate explicit reference to them on CDFG's web site.

MWA will conduct pre-construction surveys for burrowing owls to determine if there are occupied habitats for the species. If burrowing owls are found in the potential area of effect, MWA would consult with Ms. Rebecca Jones, CDFG Environmental Scientist (as directed by Comment 12, below). In consultation with Ms. Jones, MWA may then choose to take action to avoid impacts to burrowing owls (such as constructing outside of the nesting season and/or establishing a buffer zone between construction activity and any active nest). Recharge basins have not proved incompatible with burrowing owls (there is occupied burrowing owl habitat adjacent to recharge areas at Kern Water Bank, for example). If, in consultation with Ms. Jones, MWA finds that the impacts of its facilities would be inconsistent with the protections provided under Fish and Game Code Section 3503.5, MWA would consider feasible avoidance, minimization, and mitigation, including the above protocol, and would implement the appropriate actions.

11. Comment: In addition, a Streambed Alteration Agreement may be necessary for some of the activities proposed. The Department must be contacted to determine if a Streambed Alteration Agreement will be needed.

Response: MWA concurs and noted in the EIR that a Streambed Alteration Permit could be required.

12. Comment: Thank you for this opportunity to comment. Questions regarding this letter and further coordination on these issues should be directed to Ms. Rebecca Jones, Environmental Scientist, (661) 285-5867.

Response: MWA appreciates CDFG's comments and looks forward to working with Ms. Jones to ensure project compliance with the California Fish and Game Code.

9. Mr. Greg Cash
Engineering Geologist
South Basin Regulatory Unit
California Regional Water Quality Control Board, Lahontan Region
14440 Civic Drive, Suite 200
Victorville, CA 92392
Written comment by letter dated December 9, 2005

1. Comment: The Draft EIR provided information regarding the existing arsenic levels in groundwater, and indicated that MWA will also designate areas of "lower" arsenic soil concentrations versus "higher" arsenic concentrations, in delineating where recharge will be proposed. The Draft EIR needs to address how the delineation of the soil types (with lower and higher arsenic concentrations) in the recharge areas will be investigated. The Draft EIR will need to include mitigation monitoring pursuant to Public Resources Code Section 21081.6 and California Code of Regulations, Title 14, Section 15097.

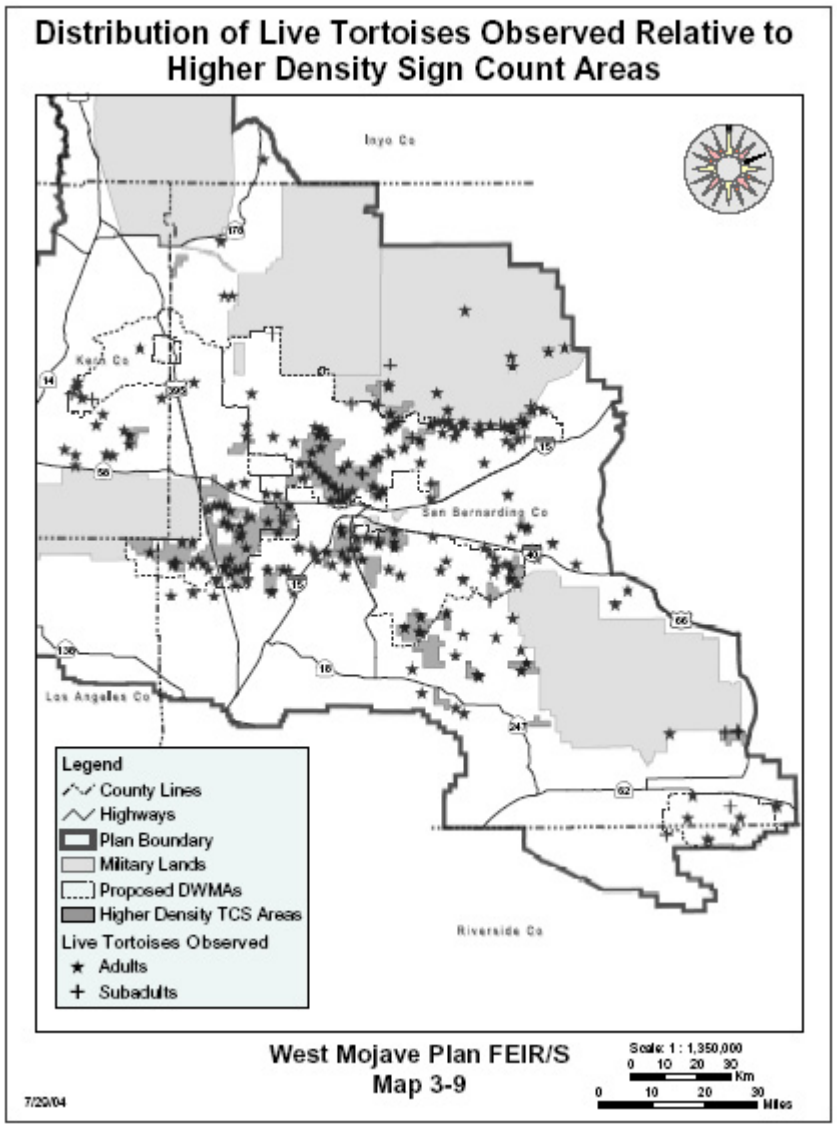
Response: Based on preliminary geotechnical analyses, MWA selected a number of potential recharge basin sites, focusing on areas with characteristics likely to avoid areas with high arsenic concentrations in subsurface soils. These evaluations included analysis of groundwater data from wells in the vicinity of the proposed recharge sites, including evaluations as part of MWA pilot projects at Oro Grande Wash. MWA will confirm these analyses during pre-design and construction geotechnical analyses, when corings at potential well sites will be made and cores examined to ensure that subsurface soil conditions do not result in recharge to areas with high potential arsenic concentrations. If corings identify high arsenic concentrations in soils, then MWA may evaluate and select recharge sites in adjacent areas.

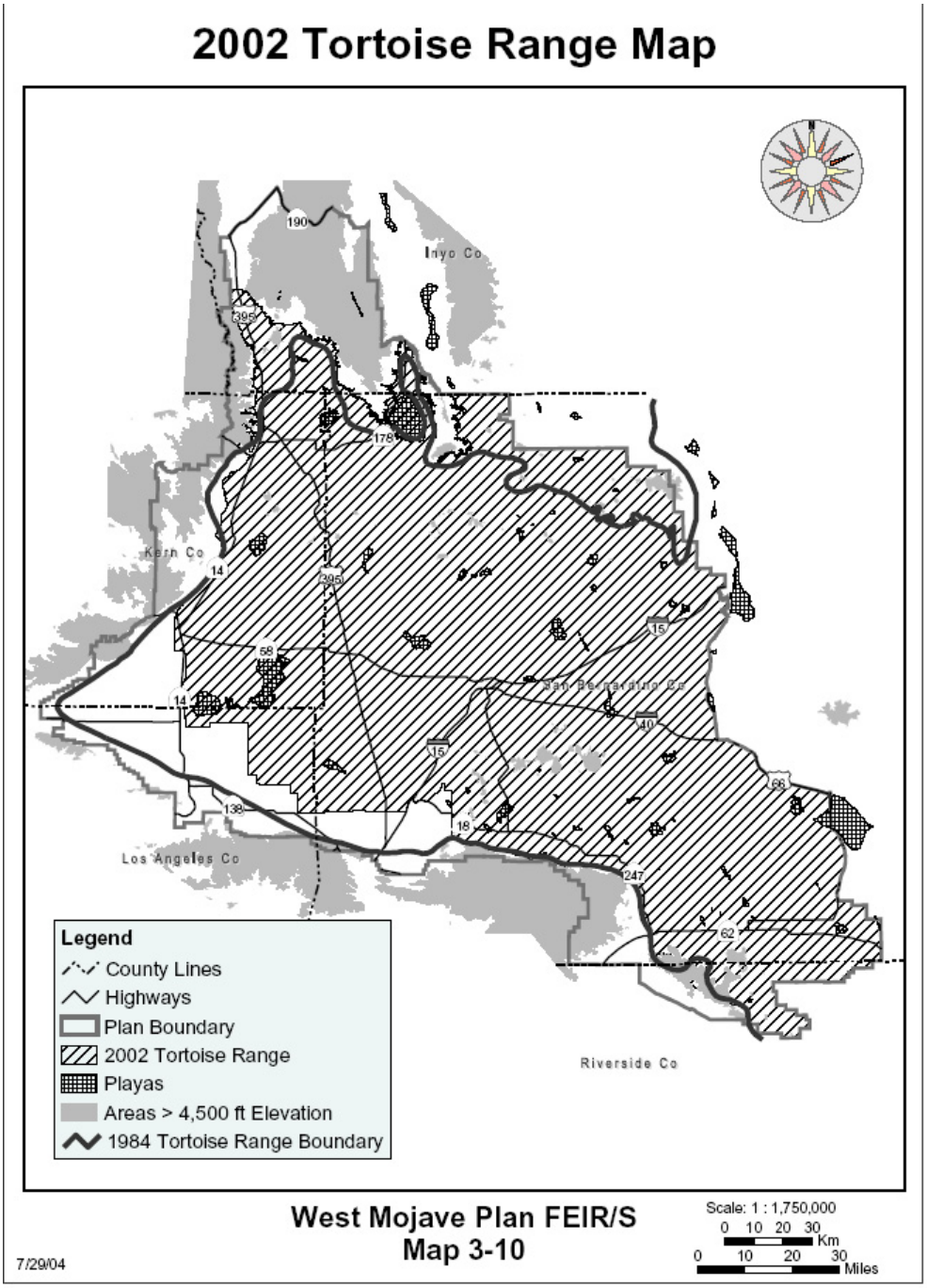
2. Comment: During periods of natural flooding in the Mojave River, there may be potential for groundwater and surface water to come in contact with each other. The DEIR indicates that MWA will adjust the recharge levels adjacent to the Mojave River to keep the groundwater at a depth of 20 feet or lower than the ground surface, to keep groundwater and surface water from contacting each other. There is no mention in the Draft EIR on how this will be accomplished or how the recharge/injection system will be adjusted to prevent commingling. There is no mention of installing piezometers, monitoring wells or other devices that will be utilized to determine this 20-ft separation, or where they will be placed. The Draft EIR needs to address this issue as to how commingling of groundwater and surface water will be prevented. If installing monitoring devices is a proposed mitigation measure, then the Draft EIR clearly needs to propose such monitoring, which is required pursuant to Public Resources Code Section 21081.6 and California Code of Regulations, Title 14, Section 15097.

Response: The Project Description notes that MWA would not recharge in the Mainstem Mojave River during periods of significant natural flow. Thus the proposed project would not affect natural flows directly.

The DEIR, Section 5.14.5 notes how MWA would respond to rising groundwater levels during recharge by "diverting some banked supplies to other recharge facilities." To clarify, MWA will have numerous existing and new off-channel recharge facilities which will receive water for banking. If monitoring of groundwater recharge operations in the mainstem channel detects groundwater rising to within 20 feet of the channel surface prior to the wet season, then MWA will divert flow to these other facilities. DEIR Section 5.6.4.2 also describes this monitoring and mitigation.

Finally, MWA notes that there are already numerous monitoring and production wells along the Mojave River in the proposed project area. These wells are routinely monitored by local producers. New wells associated with the proposed Mojave River Well Field would deliver raw water to local producers, who would cooperate with MWA in monitoring water quality parameters. In all, the proposed project, if fully implemented, would result in a system of over 30 existing and new wells, monitoring of which will provide a coherent view of the effects of the proposed project on groundwater. MWA also notes that there are existing assessment and monitoring protocols for wells that may come under the influence of surface waters, described in detail in the Department of Health Services (DHS) "*Drinking Water Source Assessment for Surface Water Sources*" August 18, 2000. As described in this DHS publication, there are a number of different protocols for assessing whether a well is under surface water influence. DHS may request various assessment techniques, depending on their judgment of the potential for a well to be under surface water influence. These protocols, or any updated DHS protocols, will be implemented, as appropriate, in consultation with local producers, the County of San Bernardino, and DHS.


Distribution of Live Tortoises Observed Relative to Higher Density Sign Count Areas
Inyo Co
Kern Co
San Bernardino Co
Los Angeles Co
Riverside Co
Legend
County Lines
Highways
Plan Boundary
Military Lands
Proposed DWMAs
Higher Density TCS Areas
Live Tortoises Observed
Adults
Subadults
West Mojave Plan FEIR/S
Map 3-9
Scale: 1 : 1,350,000
0 10 20 30 Km
0 10 20 30 Miles
7/29/04


2002 Tortoise Range Map
Inyo Co
Kern Co
San Bernardino Co
Los Angeles Co
Riverside Co
190
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14
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15
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247
62
Legend
County Lines
Highways
Plan Boundary
2002 Tortoise Range
Playas
Areas > 4,500 ft Elevation
1984 Tortoise Range Boundary
West Mojave Plan FEIR/S
Map 3-10
7/29/04
Scale: 1 : 1,750,000
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10. Department of Water Resources, State Water Project Analysis Office (SWPAO), Ms. Elizabeth Patterson. By email, Monday, 24 October 2005

The following comments apply to an administrative draft provided to DWR's SWPAO. Pagination may differ slightly from that in the DEIR.

General Comment A: My overall impression is that the admin. draft EIR is thorough, and presents information of sufficient detail to address potential impacts. The document is well written and provides a wealth of documentation for the reader.

Response: We appreciate DWR's response to our efforts and the specific comments received (below), especially DWR's noting opportunities for us to clarify the Draft EIR.

General Comment B: The most important point to make to MWA is the need for a discussion of the operation of the SWP and its maintenance. There is good information about water quality although there could be a more detailed discussion of the effect of the banked water introduction into the California Aqueduct. [The water quality discussion is very informative and demonstrates the benefits of SWP water for arsenic currently in the groundwater.] This must be discussed and there will be comments on the draft EIR by Operations. For instance, there should be a discussion of the approval necessary from DWR/SWPAO regarding scheduling of water process.

Response: The DEIR notes that a variety of permits may be required from DWR, but we are pleased to provide more detail to clarify these permits. First, the banking and exchange elements of the proposed project may require a point of delivery agreement from DWR or may be managed through DWR water delivery scheduling procedures. At times, Metropolitan will request that DWR deliver its Table A or other supplies to MWA; at other times MWA will request that its supplies be delivered to Metropolitan. DWR will review these requests to ensure that they are consistent with the proposed project and the MWA/MWD water supply contracts with DWR.

Second, if MWA decides to deliver supplies via the Unnamed Wash, MWA will request permission to construct a new turnout and/or modify an existing turnout from the California Aqueduct to accomplish this task.

Third, to the extent that MWA makes returns to Metropolitan using supplies pumped from groundwater, it will need to ensure that these supplies meet any DWR requirements for introduction to the California Aqueduct. The data to address the potential for introduction of groundwater is generally provided in the DEIR, but we appreciate DWR's suggestion that we clarify this issue. As the DEIR notes in Chapters 3 and 4, the project could involve pump-back to the California Aqueduct from the Mojave River Aquifer upstream of the Mojave Narrows and from wells sited adjacent to potential groundwater recharge facilities. Proposed operations at these sites would generally involve import and recharge of SWP supplies and MWA would seek

to optimize the water quality of the supplies delivered through scheduling. Given that wells would be located within about 0.5 miles of the river and within about 0.25 miles from the inland groundwater recharge basins, a vast majority of the supply returned to the California Aqueduct for delivery to Metropolitan via direct pump back would be a mix of SWP supply and indigenous groundwater with some potential for leaching of minerals during recharge.

Deliveries to the California Aqueduct would, however, probably be dominated by exchange, and groundwater pumped back would be monitored and managed to ensure that resulting water quality in the Aqueduct was not degraded. The mix of SWP water and indigenous water in the Mojave River Aquifer (see Table 5-41 of the DEIR) would enhance water quality when compared to that in the Aqueduct for some constituents. For other constituents, there would be potential lowering of water quality. A 50-50 mix of SWP and indigenous groundwater from this aquifer would routinely result in a blend that meets DHS drinking water standards for mineral constituents because the water quality of both sources is good.

Pump-back of a mix of SWP water and indigenous groundwater from the Alto and Oeste portions of the Regional Aquifer (Table 5-41 of the DEIR) would be of marginally poorer quality, given general levels of some mineral constituents in this aquifer, including arsenic. However, recharge basins have been sited to avoid soil types that contain high levels of arsenic, and indigenous groundwater quality in these areas would be less affected by arsenic as a result. It is thus likely that a mix of SWP water and indigenous groundwater at these recharge sites would result in a blend that would meet DHS drinking water standards for mineral constituents.

The water quality criteria for acceptance of non-project water into the State Water Project are discussed in the *Interim Department of Water Resources Water Quality Criteria for Acceptance of Non-Project Water Into the State Water Project* (dated March 1, 2001) and *Implementation Procedures for the Review of Water Quality from Non-Project Water Introduced into the State Water Project* (dated March 14, 2001). Under these criteria, the quality of the non-SWP water is compared to the ambient water quality of SWP water for the period 1988 through 2004. The criteria reflect that the ambient quality can vary by season and by year-type. If the water is accepted, then monitoring is required to confirm that the water continues to meet the requirements.

DWR has used a two-tier approach for accepting non-project water into the California Aqueduct. Tier 1 programs have a "no adverse impact" criteria and are tied to historical water quality levels in the California Aqueduct. Programs meeting the Tier 1 criteria would likely be approved by DWR. Tier 2 programs would have water quality levels that exceed the historical water quality levels in the California Aqueduct for at least one or more constituents, and so could cause adverse impacts to state water contractors. Tier 2 programs would be referred to a state water contractor facilitation group, which would review the program and make recommendations for DWR's consideration of the project. Under Tier 1, all constituents of non-project water should be within the historical water quality levels measured at the O'Neill Forebay Outlet (formerly measured at Check 13) on the SWP as measured by DWR's water quality monitoring program.

The DEIR analysis was based on aggregate groundwater quality data from a number of local wells in the Mojave River Floodplain Aquifer and the adjacent Alto Regional Aquifer. The DEIR notes that data from wells located adjacent to groundwater recharge basins is likely to be of better quality, primarily because the proposed recharge sites have been sited to avoid areas with known soils/mineral problems. To clarify this point, MWA has identified a number of wells in the vicinity of the proposed project facilities and has evaluated recent (2004 and 2005) water quality data for these wells. The results of this evaluation are discussed below, with an explicit comparison between current DWR water quality criteria and Department of Health Services drinking water standards. See Tables A through G, attached, for details.

Indigenous groundwater quality compared to DWR criteria and DHS drinking water standards.

a. Oeste Recharge Basins

Data on indigenous water quality from two wells located about 1 mile downgradient from the proposed Oeste recharge basins were compared to DWR pump-back criteria and DHS drinking water criteria (MCLs and Guidelines). Only one data point (a maximum value for manganese at well number 05N07W28L01) was in excess of DHS drinking water criteria. Indigenous water quality is compared to DWR pump-back criteria/guidelines on Table 1. Note that bromides and total organic carbon are not routinely monitored in groundwater supplies. These data are the only representative data currently available nearby. Development of any recharge locations would necessarily entail addition geohydrologic site investigations, including site-specific water quality analysis.

Table 1.

CONSTITUENT	**SWP WQ 1988-2004 (GUIDELINES)**			**INDIGENOUS WATER QUALITY**	
	MEAN	**MIN**	**MAX**	**MIN**	**MAX**
Aluminum (ug/l)	30	4	527	1	100
Antimony (ug/l)	3	1	5	**6**	**6**
Arsenic (ug/l)	2	1	4	2	2
Barium (ug/l)	50	37	68	**40**	**100**
Beryllium (ug/l)	1	1	1	1	1
Bromide (ug/l)	NA	NA	NA	NA	NA
Cadmium (ug/l)	4	1	5	1	1
Chromium (ug/l)	5	1	11	**10**	**15**
Copper (ug/l)	5	2	28	0	**50**
Fluoride (mg/l)	0.11	0.01	0.55	**0.17**	0.32
Iron (ug/l)	47	5	416	0	100
Manganese (ug/l)	10	3	60	0	**180***
Mercury (ug/l)	0.8	0.2	1	**1**	1
Nickel (ug/l)	1	1	4	**10**	**10**
Nitrate (mg/l)	3.5	0.6	9.6	1	7.9
Selenium (ug/l)	1	1	2	**5**	**5**
Silver (ug/l)	4	1	5	0	**10**
Sulfate (mg/l)	43	17	99	1.9	**184**
Total Organic Carbon (ug/l)	Not routinely monitored				
Zinc (ug/l)	9	5	21	0	**50**

* Exceeds DHS MCL

b. Alto Recharge Basins

Data on indigenous water quality from one well located to the west and downgradient about a mile from the proposed Alto recharge basins were compared to DWR pump-back criteria and DHS drinking water criteria (MCLs and Guidelines). DHS drinking water criteria were exceeded in one sample for arsenic. Indigenous water quality is compared to DWR pump-back criteria/guidelines on Table 2. Note that bromides and total organic carbon are not routinely monitored in groundwater supplies.

Table 2.

CONSTITUENT	**SWP WQ 1988-2004 (GUIDELINES)**			**INDIGENOUS WATER QUALITY**	
	MEAN	**MIN**	**MAX**	**MIN**	**MAX**
Aluminum (ug/l)	30	4	527	0	100
Antimony (ug/l)	3	1	5	0	**6**
Arsenic (ug/l)	2	1	4	2	**14***
Barium (ug/l)	50	37	68	0	100
Bromide (ug/l)	NA	NA	NA	NA	NA
Beryllium (ug/l)	1	1	1	0	1
Cadmium (ug/l)	4	1	5	0	1
Chromium (ug/l)	5	1	11	0	10
Copper (ug/l)	5	2	28	0	**50**
Fluoride (mg/l)	0.11	0.01	0.55	**0.38**	**0.8**
Iron (ug/l)	47	5	416	0	100
Manganese (ug/l)	10	3	60	0	30
Mercury (ug/l)	0.8	0.2	1	0	1
Nickel (ug/l)	1	1	4	0	**10**
Nitrate (mg/l)	3.5	0.6	9.6	0.95	3.9
Selenium (ug/l)	1	1	2	0	**5**
Silver (ug/l)	4	1	5	0	**10**
Sulfate (mg/l)	43	17	99	31	87.4
Total Organic Carbon (ug/l)	Not routinely monitored				
Zinc (ug/l)	9	5	21	0	**50**

* Exceeds DHS MCL

c. Oro Grande Recharge Basins

Data on indigenous water quality from four wells located in the general vicinity of the proposed Oro Grande Recharge basins were compared to DWR pump-back criteria and DHS drinking water criteria (MCLs and Guidelines). Wells were located upstream (H01), downstream (M01 and E08) and in a developed area to the east (13J01). DHS drinking water criteria were not exceeded for any constituent monitored. Indigenous water quality is compared to DWR pump-back criteria/guidelines on Table 3. Note that bromides and total organic carbon are not routinely monitored in groundwater supplies, although bromides were evaluated at several of the Oro Grande wells.

Table 3.

CONSTITUENT	**SWP WQ 1988-2004 (GUIDELINES)**			**INDIGENOUS WATER QUALITY**	
	MEAN	**MIN**	**MAX**	**MIN**	**MAX**
Aluminum (ug/l)	30	4	527	0	60
Antimony (ug/l)	3	1	5	ND	0
Arsenic (ug/l)	2	1	4	1.6	**5.7**
Barium (ug/l)	50	37	68	0	8.4
Beryllium (ug/l)	1	1	1	ND	0
Bromide (ug/l)	0.21	0.05	0.54	0.16	0.5
Cadmium (ug/l)	4	1	5	ND	0
Chromium (ug/l)	5	1	11	0	**42.9**
Copper (ug/l)	5	2	28	ND	0
Fluoride (mg/l)	0.11	0.01	0.55	0.2	**27**
Iron (ug/l)	47	5	416	0	127
Manganese (ug/l)	10	3	60	0	**161**
Mercury (ug/l)	0.8	0.2	1	0	0
Nickel (ug/l)	1	1	4	0	0
Nitrate (mg/l)	3.5	0.6	9.6	0.02	0.52
Selenium (ug/l)	1	1	2	ND	0
Silver (ug/l)	4	1	5	0	0
Sulfate (mg/l)	43	17	99	3	34
Total Organic Carbon (ug/l)	Not routinely monitored				
Zinc (ug/l)	9	5	21	ND	0

d. Cedar Avenue Detention Basin

Data on indigenous water quality from a well located about 1.5 miles downslope and to the west of the proposed Cedar Avenue Recharge basin were compared to DWR pump-back criteria and DHS drinking water criteria (MCLs and Guidelines). DHS drinking water criteria were not exceeded for any constituent monitored. Indigenous water quality is compared to DWR pump-back criteria/guidelines on Table 4. Note that bromides and total organic carbon are not routinely monitored in groundwater supplies.

Table 4.

CONSTITUENT	**SWP WQ 1988-2004 (GUIDELINES)**			**INDIGENOUS WATER QUALITY**	
	MEAN	**MIN**	**MAX**	**MIN**	**MAX**
Aluminum (ug/l)	30	4	527	0	100
Antimony (ug/l)	3	1	5	0	**6**
Arsenic (ug/l)	2	1	4	0	**10**
Barium (ug/l)	50	37	68	0	**100**
Beryllium (ug/l)	1	1	1	0	**1.8**
Bromide (ug/l)	0.21	0.05	0.54	0	0
Cadmium (ug/l)	4	1	5	0	1.75
Chromium (ug/l)	5	1	11	0	10
Copper (ug/l)	5	2	28	0	**50**
Fluoride (mg/l)	0.11	0.01	0.55	0.08	0.4
Iron (ug/l)	47	5	416	0	100
Manganese (ug/l)	10	3	60	0	30
Mercury (ug/l)	0.8	0.2	1	0	1
Nickel (ug/l)	1	1	4	0	**10**
Nitrate (mg/l)	3.5	0.6	9.6	0.5	3.2
Selenium (ug/l)	1	1	2	0	**5**
Silver (ug/l)	4	1	5	0	**10**
Sulfate (mg/l)	43	17	99	1.8	10.8
Total Organic Carbon (ug/l)	Not routinely monitored				
Zinc (ug/l)	9	5	21	0	**70**

e. Antelope Wash recharge Basins

Data on indigenous water quality from a well located about a mile downgradient and to the west of the proposed Antelope Wash recharge basins were compared to DWR pump-back criteria and DHS drinking water criteria (MCLs and Guidelines). DHS drinking water criteria were not exceeded for any constituent monitored. Indigenous water quality is compared to DWR pump-back criteria/guidelines on Table 5. Note that bromides and total organic carbon are not routinely monitored in groundwater supplies.

Table 5.

CONSTITUENT	**SWP WQ 1988-2004 (GUIDELINES)**			**INDIGENOUS WATER QUALITY**	
	MEAN	**MIN**	**MAX**	**MIN**	**MAX**
Aluminum (ug/l)	30	4	527	0	0
Antimony (ug/l)	3	1	5	0	0
Arsenic (ug/l)	2	1	4	0	0
Barium (ug/l)	50	37	68	0	0
Beryllium (ug/l)	1	1	1	0	0
Bromide (ug/l)	0.21	0.05	0.54	NA	NA
Cadmium (ug/l)	4	1	5	0	0
Chromium (ug/l)	5	1	11	0	10
Copper (ug/l)	5	2	28	0	0
Fluoride (mg/l)	0.11	0.01	0.55	0.1	0.2
Iron (ug/l)	47	5	416	0	0
Manganese (ug/l)	10	3	60	0	0
Mercury (ug/l)	0.8	0.2	1	0	0
Nickel (ug/l)	1	1	4	0	0
Nitrate (mg/l)	3.5	0.6	9.6	4	6
Selenium (ug/l)	1	1	2	0	0
Silver (ug/l)	4	1	5	0	0
Sulfate (mg/l)	43	17	99	3.7	3.9
Total Organic Carbon (ug/l)	Not routinely monitored				
Zinc (ug/l)	9	5	21	0	0

f. Green Tree Recharge Basin

Data on indigenous water quality from a well located within the site of the proposed Green Tree recharge basin were compared to DWR pump-back criteria and DHS drinking water criteria (MCLs and Guidelines). DHS drinking water criteria were not exceeded for any constituent monitored. Indigenous water quality is compared to DWR pump-back criteria/guidelines on Table 6. Note that bromides and total organic carbon are not routinely monitored in groundwater supplies.

Table 6.

CONSTITUENT	**SWP WQ 1988-2004 (GUIDELINES)**			**INDIGENOUS WATER QUALITY**	
	MEAN	**MIN**	**MAX**	**MIN**	**MAX**
Aluminum (ug/l)	30	4	527	0	50
Antimony (ug/l)	3	1	5	0	**6**
Arsenic (ug/l)	2	1	4	0	**8**
Barium (ug/l)	50	37	68	0	**100**
Beryllium (ug/l)	1	1	1	0	1
Bromide (ug/l)	0.21	0.05	0.54	NA	NA
Cadmium (ug/l)	4	1	5	0	1
Chromium (ug/l)	5	1	11	0	10
Copper (ug/l)	5	2	28	0	**50**
Fluoride (mg/l)	0.11	0.01	0.55	0.1	0.12
Iron (ug/l)	47	5	416	0	100
Manganese (ug/l)	10	3	60	0	30
Mercury (ug/l)	0.8	0.2	1	0	1
Nickel (ug/l)	1	1	4	0	**10**
Nitrate (mg/l)	3.5	0.6	9.6	2.1	2.7
Selenium (ug/l)	1	1	2	0	**5**
Silver (ug/l)	4	1	5	0	**10**
Sulfate (mg/l)	43	17	99	6.7	8.7
Total Organic Carbon (ug/l)	Not routinely monitored				
Zinc (ug/l)	9	5	21	0	**50**

g. Mojave River Well Field

Data on indigenous water quality from 3 wells located near the proposed Mojave River Well Field were compared to DWR pump-back criteria and DHS drinking water criteria (MCLs and Guidelines). DHS drinking water criteria were not exceeded for any constituent monitored. Indigenous water quality is compared to DWR pump-back criteria/guidelines on Table 7. Note that bromides and total organic carbon are not routinely monitored in groundwater supplies.

Table 7.

CONSTITUENT	**SWP WQ 1988-2004 (GUIDELINES)**			**INDIGENOUS WATER QUALITY**	
	MEAN	**MIN**	**MAX**	**MIN**	**MAX**
Aluminum (ug/l)	30	4	527	0	100
Antimony (ug/l)	3	1	5	0	0
Arsenic (ug/l)	2	1	4	0	**10***
Barium (ug/l)	50	37	68	0	**500***
Beryllium (ug/l)	1	1	1	0	0
Bromide (ug/l)	0.21	0.05	0.54	NA	NA
Cadmium (ug/l)	4	1	5	0	5
Chromium (ug/l)	5	1	11	0	10
Copper (ug/l)	5	2	28	0	**50***
Fluoride (mg/l)	0.11	0.01	0.55	**0.23***	0.4
Iron (ug/l)	47	5	416	0	110
Manganese (ug/l)	10	3	60	0	30
Mercury (ug/l)	0.8	0.2	1	0	1
Nickel (ug/l)	1	1	4	0	0
Nitrate (mg/l)	3.5	0.6	9.6	0.7	9.33
Selenium (ug/l)	1	1	2	0	**5***
Silver (ug/l)	4	1	5	0	**10***
Sulfate (mg/l)	43	17	99	3	16.1
Total Organic Carbon (ug/l)	Not routinely monitored				
Zinc (ug/l)	9	5	21	0	**50***

* Values from Well 04N04W24G01, south and a mile inland from the river channel.

Discussion.

The summary data on Tables 1-7 are detailed on Tables A through G (attached). The data on the detailed tables suggest (a) there is substantive variation in indigenous groundwater quality from well site to well site. For example, all of the values in excess of current DWR pump-back criteria shown on Table 7 (Mojave River Well Field) are from a well a mile inland from the Mainstem River and at the southern boundary of the probable well field. These data are probably not representative of the water quality likely from the Mojave River Well Field; based

on the data from the two wells closer to the river and further downstream, water in the Mojave River Well Field is of consistently better quality (See Table G attached).

The data also show that indigenous groundwater quality in the vicinity of the major washes (Oro Grande and Antelope Wash) is of better quality, probably reflecting the influence of natural recharge of good quality runoff from the mountains through a sandy substrate.

The data also show that, with only three exceptions, the indigenous water quality in existing wells near the proposed recharge basins is equal to or better than Department of Health Services drinking water criteria. In addition, indigenous water quality is equal to or better than DWR historic water quality at O'Neal Forebay (1988-2004) from many constituents. This is particularly true for the Mojave River Well Field and Antelope Wash. It is also notable (see Tables A through G, attached) that indigenous water quality in the Floodplain and Alto Regional aquifers has consistently low levels of hydrocarbon constituents such as petroleum products and pesticides and herbicides.

In general, these data are consistent with the more generalized findings in the DEIR. They suggest that indigenous groundwater at the proposed sites is of generally better quality than the SWP pump-back guidelines for aluminum, cadmium, iron, manganese, mercury, nitrate, and sulfate and may generally exceed pump-back guidelines for antimony, barium, copper, fluoride, nickel, selenium, silver, and zinc. The well data suggest that maximum concentrations of mineral constituents are the primary issue related to pump-back operations.

These data suggest that pump-back of water from the Antelope Wash and Mojave River Well Field would meet or exceed pump-back guidelines. Water from these sources may be blended with water from other recharge areas to bring overall pump-back into compliance with current pump back guidelines. It should also be noted that wells would be sited to intercept recharged groundwater and that much of the water pumped back to the California Aqueduct would be a mix of indigenous groundwater and banked SWP supplies. It is likely that mixing of SWP and indigenous water supplies would result in a lower potential for maximum levels of various constituents to be in excess of current pump-back guidelines.

As noted in the Project Description, MWA would site wells to optimize water supply and quality and would routinely monitor groundwater quality. Where stored supplies may be used for pump-back of supplies to the California Aqueduct, this monitoring would include monitoring for all relevant constituents identified by DWR as water quality criteria for acceptance of Non-Project Water Into the State Water Project. Based on this monitoring, MWA believes that it could operate to supply a blend of supply to the California Aqueduct that would meet current and future DWR pump back criteria or guidelines.

Comment 1. I suggest that you use the CEQA process for incorporated referenced documents. See CEQA guidelines. This is particularly true when referencing the PEIR for Mojave Water Management.

Response: The DEIR is intended to stand on its own, and we have thus not routinely incorporated referenced documents. We have cited references in the same manner that such references are cited in scientific reports to explain the source and basis for data and analysis. We have not incorporated references as a whole because (a) there is irrelevant data in many of the references and incorporation of these data would be potentially confusing and (b) we do not necessarily concur with all aspects of the cited references. For example, we slightly modified the PEIR methods for evaluation of Air Quality impacts, using a different mix of construction equipment and making reference to additional approaches to estimating air quality effects. Thus, incorporating referenced documents, even the PEIR, would result in minor inconsistencies.

Comment 2: CEQA requires an executive summary.

Response: The early administrative draft you received did not include the executive summary, but this has been provided in the Draft EIR submitted to the State Clearinghouse on October 28, 2005.

Comment 3: At page 1-1, first paragraph, it should explain why only 7 of the local agencies have done UWMP (3,000 hookup threshold is the most common reason why not. In the case of no UMP, then some discussion of rural, ag. Water Efficiency Plan (one time plan) should be discussed.

Response: Only 8 local agencies within MWA's service area have prepared UWMP's and the reason is that only 8 have more than 3000 hookups.

MWA's Regional Water Management Plan discusses agricultural Water Efficiency Plans and their operations are reflected in the water supply projections discussed in Chapter 2. The data on Table 2-2 incorporate two agricultural water use scenarios, including a scenario reflecting increased agricultural water conservation. The specifics of these plans were not discussed in the DEIR because they are functionally irrelevant to the operation of the Proposed Project.

Comment 4: Same page, water reliability should not be done on an annual basis but rather on a water year basis.

Response: MWA is probably unique in its approach to water supply reliability because virtually all water delivered to producers in MWA's service area is stored groundwater. MWA delivers only about 5,000 acre-feet of surface supply per year. In addition, MWA maintains groundwater supplies in excess of average annual demand. In normal-to-wet years, MWA may therefore import and recharge water, some of which may be used in the year of delivery and some of which will not be used until a dry year deficit occurs. As a result, considerations of water year

versus calendar year and considerations of water year type are less important in MWA's operations than in the operations of most State Water Project contractors. However, MWA average native water supply determinations are made on a water year basis and are compiled in their RWMP and reported that way to the Court in the Mojave Basin Area.

Comment 5: Page 2-3, paragraph 3. Last line is missing words.

Response: We apologize for this typographical error. The last eight words in the sentence should be deleted and the sentence should read: "Carryover supplies may be acquired by transfer or exchange." The Final EIR has been so revised.

Comment 6: Page 2-7, first paragraph. There should be a discussion of "hardening" of water demand. I think that is what is meant by balance. This makes it very hard to find water during critically dry years, especially if that water is committed to urban uses. The water management needs should include a buffer for this.

Response: MWA's approach to water supply management is different from most users because almost all water used in the service area is groundwater and MWA recharges all but about 5,000 acre-feet of all supplies available to it. Thus, MWA seeks a long-term "balance" of total supply and that is what the analysis in Chapter 2 seeks to describe. Any water delivered in excess of MWA's obligations thus necessarily is stored for future uses, providing the buffer that DWR refers to in this comment. The potential effects of this buffer are described in pages 5-146 and 147, where we note that the primary effect of increasing storage is to extend the period during which MWA will be able to meet its obligations to local producers. See also DEIR Table 5-43. See also response to Comment 4.

Comment 7: Same page. Under costs, there is a reference to acre-foot costs and a discussion of different permutations. Please continue to express things in cost/acre-foot so the reader can understand the point of the comparison. Also, I don't quite get the discussion on the costs and you may want to expand that so the "average" reader understands the process.

Response: We shifted from a discussion of costs per acre-foot to gross costs in millions of dollars so that the average reader, who may not understand the concept of acre-feet of water and its application to average use per capita or per family, could understand the magnitude of the costs associated with the import of supplies.

Comment 8: Page 2-8, first paragraph. I suggest you quantify this discussion. Choose three water years, including 2005 and compare what this means for management purposes.

Response: We did not quantify this discussion over a period of years because the conflict between in-river natural flow and in-river recharge has not been documented. To clarify the intent of this paragraph, we would note that, as described later, no artificial recharge would occur

during periods of substantial natural flow in the Mojave River. The implication of this problem, discussed in later sections related to the benefits and impacts of the proposed project, is that off-channel recharge facilities are needed to accommodate SWP deliveries in years when there is substantial flow in the Mojave River.

Comment 9: At page 2-10, maybe the document could nuance the "full use of Table A" as not for consumption, but for water management which would include the aforementioned buffer in case of critically dry years (5 to 7 years for planning purposes).

Response: Chapter 2 was intended to define needs, and MWA therefore deferred the discussion of the proposed project to provide a buffer against dry years for the impacts analysis. However, we take this opportunity to thank DWR for this clarifying suggestion and we note that full use of MWA's Table A and other available supplies would significantly enhance MWA's ability to manage water supplies now and in the future, including planning for supply during periods of drought.

Comment 10. I don't get a good picture of this environmental setting. It is introduced in a physically built environment rather than the ecological niche or niches it represents. I think the reader will want to understand how the ecology of the area works. The words seem to be in various paragraphs, but I think an introductory paragraph of the "way it was ecologically" would help see how things are connected and what the functions are.

Response: As you note in a later comment, the base case for the environmental setting is the existing condition, but we appreciate your suggestion that we provide a clarifying summary of the historical ecological context, as follows:

"The MWA service area incorporates much of the south-central Mojave Desert, an area of low precipitation and long periods of high temperature and low humidity. The basin consists of a series of valleys formed as a result of uplift, volcanic activity, and seismic activity along the San Andreas Fault and related earthquakes. These valleys tend to be hydrologically and hydrogeologically isolated. Most of the water available to people and wildlife is derived from runoff from the mountains to the west and south, and the various basins are crossed by desert washes that lead to dry lake beds. Runoff percolates rapidly into groundwater when it reaches the valley floor and runoff reaching dry lakes accumulates and then dries out rapidly. Surface water quality tends to deteriorate with distance from the mountains. Along the Mojave River, water flows under the channel and is forced to the surface at several sites where seismic activity has created blocks to sub-surface flow.

Wildlife in the Mojave Basin show various typical adaptations to an environment characterized by seasonally extreme hot and dry conditions and periodically more severe and extended drought. For plants, these adaptations include deep roots, waxy/oily leaves, creation of plant/soil "crusts" that reduce erosion of the very thin topsoils, and loss of leaves during drought conditions. Animal adaptations include burrowing, estivation or hibernation during dry periods,

special physiological adaptations to drought, and/or the ability to recolonize marginal habitat where localized extinctions may occur during extreme droughts. These adaptations make desert ecosystems relatively sensitive to human disturbance, particularly disturbance that affects soil integrity and fragments habitat."

Comment 11: At page 5-37. I suggest that the EIR incorporate by reference the West Mojave Plan.

Response: The West Mojave Plan includes a compendium of the available scientific data useful for overall planning in the Mojave Basin. We have referenced some of that data and some of the conclusions and recommendations of the scientists who helped prepare it. However, the West Mojave Plan has not been adopted and is considered by man to be a "work in progress." In their comment letter, CDFG noted that they were not yet willing to accept elements of the West Mojave Plan as binding on CDFG. Given CDFG's hesitance to accept elements of the West Mojave Plan, we do not think it is appropriate to incorporate the plan into the EIR by reference, as it may change. We would not want our EIR to effectively codify elements of the West Mojave Plan that may change in the future (which would then require the Lead Agencies for the West Mojave Plan to address discrepancies between their plan and the EIR).

Comment 12: At page 5-44, second full paragraph, add the water amounts released during the pilot project.

Response: The 2003-2005 Pilot Project is on-going, and thus we did not provide total amounts released. The material point of the discussion was also that releases of up to 400-500 cfs did not affect Arroyo Toad estivation habitat and thus could be continued during operation of the proposed project. Based on data to date, 2003 deliveries to MWA were 24,874 acre-feet and in 2005 were approximately 20,000 acre-feet.

Comment 13: At page 5-64, regarding endowed management, there are non governmental agencies who do this, such as the Center for Natural Lands Management. The DEIR may want to provide some choices.

Response: MWA will consider non-governmental agencies as potential mitigation managers. We avoided mentioning potential management partners in order to avoid the appearance of favoritism. Selection of an agency to assist in mitigation will require decisions based on both qualifications and cost, and this public funding process should not give the appearance of prejudgment.

Comment 14: At page 5-152, first text paragraph, 3rd line typo "gown" should be "down."

Response: Correct. We apologize for the typographical error.

Comment 15: At page 5-155, paragraph 5.13.6. replace "seawater intrusion" with "tidally influenced water." By the time it gets there, it is brackish, not sea water.

Response: We completely agree that the water is brackish by the time it reaches the Delta; we used "seawater intrusion" because we thought that this term would be better understood by the average reader, as it is the term we have often seen used in media reports. DWR is correct that the water has salt levels much lower than those of pure seawater.

Comment 16: RE: Population, housing and growth. What would improve this intelligently presented section is a reference to the California Water Plan and its 25 strategies for water supply. See page 5-169, where it is stated, ". . . MWA does not have authority to implement mitigation actions for these effects." There needs to be connection of the dots of watershed planning, land use, and water supply. Basically, the goal is to have a watershed level of understanding of the "carrying capacity" of a region. The draft correctly points out that in Southern California, development occurs regardless of the water supply with the notable exception of Owens Valley. The water supplier should help bridge the gap between the use planners and water use (supply). For indirect effects, MWA has opportunities to identify the mitigation measures that the land use jurisdiction should implement to avoid or reduce the impacts associated with land use dependent on future imported water supplies. The essential point here is that the pattern of land use will affect the amount of water needs. By using more compact urban site planning, the impacts to the resources listed at the top of page 5-169 could be less affected (the watershed management concept benefits all of these plus commercial building).

Response: MWA entirely agrees with DWR regarding the need to connect the dots in water management planning. This was accomplished in the recently adopted MWA Regional Water Management Plan. To clarify, we would add the following discussion to the "Environmental Setting."

"In the Regional Water Management Plan adopted by MWA's Board of Directors in early 2005, MWA describes its legally-mandated role in regional planning and its coordination with local and regional governments to address issues related to water supply and growth. As noted in Chapter 1 of the DEIR (Introduction), MWA's mandate is to provide supplemental supplies for use by local producers throughout the Agency. Further the Mojave Basin Area Judgment imposes restrictions on local groundwater production and requirements that local producers purchase supplemental supplies when these restrictions are exceeded. Given the cost of imported supplemental supplies (see Chapter 2), this requirement constitutes a substantial economic incentive to conserve and to manage growth and water supply intelligently.

As the agency designated to provide supplemental supply, MWA is working with local governments, water purveyors, educational institutions, and local community groups to address water conservation. For example, MWA has on-going cooperative programs to promote urban and agricultural water conservation, providing funds to the local RCD. MWA also lends

assistance to, and participates in, local programs to enhance water supply through source protection and blending, to eradicate non-native plants that adversely affect supply and native riparian areas, and to monitor groundwater supply and water quality. MWA provides educational materials and economic incentives for water conservation programs.

These activities are described in detail in the Regional Water Management Plan and have been incorporated into the supply/demand projections in the Regional Water Management Plan that are referenced in the DEIR."

MWA did not specifically reference the California Water Plan because the plan has not been formally approved. We note that the Regional Water Management Plan addresses many of the strategies for water supply and that the proposed project would be consistent with strategies in the Draft California Water Plan related to Recharge Area Protection, Conjunctive Management and Groundwater Storage, and Water Transfers.

Finally, MWA appreciates DWR's kind words regarding our effort to describe the factors that seem to drive growth in Southern California.

ATTACHMENTS (RE General Response B): Tables A-G

Table A. Comparison of recently collected water quality data from two wells in the vicinity of the proposed Oeste Recharge Basins to SWP pump-back criteria (rows with shading) and drinking water standards (MCL's). Wells 05N07W28L01 (north of the Oeste west site), 05N07W24D0 3 (northeast of the Oeste east site). Values shown in **Bold** indicate that the water quality in the well samples was in excess of SWP values. Values shown in bold and dark shading indicate water quality in excess of DHS MCLs. MCL's from Department of Health Services 2003, *Comparison of Federal and State MCLs, updated 09/12/03.* Also *July 29, 2005 amended Secondary Water Standards Table 64449-A.*

CONSTITUENT (Bold = Official MCL or Guideline, other constituents are monitored but no official standard exists)	UNITS	MCL	SWP 1988-2004			MINIMUM AND MAXIMUM VALUES IN WELL SAMPLES			
			Mean	Min	Max	OESTE WEST SITE		OESTE EAST SITE	
						MIN	MAX	MIN	MAX
1,1,1,2-Tetrachloroethane	ug/l							0	0
1,1,1-Trichloroethane	ug/l	200						0	0.1
1,1,2,2-Tetrachloroethane	ug/l	1						0	0.1
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	1200						0	0
1,1,2-Trichloroethane	ug/l	5						0	0.1
1,1-Dichloroethane	ug/l	5						0	0.1
1,1-DICHLOROETHYLENE	ug/l	6						0	0.2
1,1-Dichloropropane	ug/l							0	0
1,1-Dichloropropene	ug/l							0	0
1,2,3-Trichlorobenzene	ug/l							0	0
1,2,3-Trichloropropane	ug/l							0	0
1,2,4-Trichlorobenzene	ug/l	5						0	0
1,2,4-Trimethylbenzene	ug/l							0	0
1,2-Dichlorobenzene	ug/l	600						0	0.4
1,2-Dichloroethane	ug/l	0.5						0	0.1
1,2-Dichloropropane	ug/l	5						0	0.1
1,3,5-Trimethylbenzene	ug/l							0	0

1,3-Dichlorobenzene	ug/l							0	0.4
1,3-Dichloropropane	ug/l							0	0
1,3-Dichloropropene (Total)	ug/l	0.5						0	0
1,4-Dichlorobenzene	ug/l	5						0	0.4
1-PHENYLPROPANE (N-PROPYLBENZENE)	ug/l							0	0
2,2-Dichloropropane	ug/l							0	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/l	30							
2,4,5-TP (Silvex)	ug/l	50						0	0.01
2,4-D	ug/l	70						0	0.1
2-Chloroethyl vinyl ether	ug/l							0	0.5
2-Chlorotoluene	ug/l							0	0
3-HYDROXYCARBOFURAN	ug/l								
4-Chlorotoluene	ug/l							0	0
Alachlor	ug/l	2						0	1
Aldicarb	ug/l								
ALDICARB SULFONE	ug/l								
Aldicarb sulfoxide	ug/l								
Aldrin	ug/l								
Alkalinity, Total	mg/l							17	76
Aluminum	ug/l	200	30	4	527	1	1	20	100
Antimony	ug/l	6	3	1	5			**6**	**6**
Arsenic (USEPA)	ug/l	10	2	1	4			2	2
Asbestos	MFL[1]	7							
Atrazine	ug/l	1						0	1
Barium	ug/l	1000	50	37	68			**40**	**100**
Bentazon	ug/l	18						0	0
Benzene	ug/l	1						0	0.2
Benzo(a)pyrene	ug/l	0.2							
Beryllium	ug/l	4	1	1	1			1	1
Bicarbonate Alkalinity as CACO3	mg/l							70	82
bis-(2-Chloroethyl)ether	ug/l							0.4	0.4
Boron	ug/l	600				20	22	0	30
Bromacil	ug/l							0	10

Bromobenzene	ug/l							0	0
Bromochloromethane	ug/l							0	0
Bromodichloromethane	ug/l							0	6.3
Bromoform	ug/l							0	0.2
Bromomethane	ug/l							0	1.3
Butachlor	ug/l							0	0
Cadmium	ug/l	5	4	1	5			1	1
Calcium	mg/l							13	26.6
Carbaryl	ug/l							0	0
Carbofuran	ug/l	18						0	5
Carbon tetrachloride	ug/l	0.5						0	0.2
Carbonate Alkalinity as CACO3	mg/l							0	1
Chlordane	ug/l	0.1						0	0
Chloride	mg/l	250				0.9	4.67	2.9	22
Chloroethane	ug/l							0	0.6
Chloroform	ug/l							0	49.4
Chloromethane	ug/l							0	0.1
Chlorothalonil	ug/l							0	0
Chromium	ug/l	50	5	1	11			**10**	**15**
Chromium, Hexavalent	ug/l	50				25	25	2	21
cis-1,2-Dichloroethene	ug/l	6						0	0
Color	unit	15						0	3
Copper	ug/l	1000	5	2	28			0	**50**
Cyanide	ug/l	150						100	100
Dalapon	ug/l	200						0	0
DI(2-ETHYLHEXYL)ADIPATE	ug/l	400						0	0
DI(2-ETHYLHEXYL)PHTHALATE	ug/l	4						0	0
Diazinon	ug/l							0	1
Dibromochloromethane	ug/l							0	1.6
DIBROMOCHLOROPROPANE (DBCP)	ug/l	0.2						0	0.02
Dibromomethane	ug/l							0	0
Dicamba	ug/l								
Dichlorodifluoromethane	ug/l							0	2

Dichloromethane	ug/l	5						0	0.3
Dieldrin	ug/l								
Dimethoate	ug/l							0	1
Di-n-butyl phthalate	ug/l								
Dinoseb	ug/l	7						0	0
DIQUAT	ug/l	20							
DIURON	ug/l							1	1
ENDOTHALL	ug/l	100							
Endrin	ug/l	2						0	0/006
Ethylbenzene	ug/l	300						0	0.2
ETHYLENE DIBROMIDE (EDB)	ug/l	0.05						0	0.02
ETHYL-TERT-BUTYL ETHER	ug/l							0	0
Fluoride	mg/l	2.0	0.11	0.01	0.55			**0.17**	0.32
FOAMING AGENTS (MBAS)	ug/l	500						0	0.5
GLYPHOSATE	ug/l	700						0	0
GROSS ALPHA	pC/L							0	7.7
GROSS ALPHA COUNTING ERROR	pC/L							0.56	2.7
Hardness (as CaCO3)	mg/l					200	200	33	90
Heptachlor	ug/l	0.01						0	0
Heptachlor epoxide	ug/l	0.01						0	0
Hexachlorobenzene	ug/l	1						0	0
Hexachlorobutadiene	ug/l							0	0
Hexachlorocyclopentadiene	ug/l	50						0	0
Hydroxide Alkalinity as CACO3	ug/l							0	1
Iron	ug/l	300	47	5	416	7	10	0	100
Isopropylbenzene	ug/l							0	0
Lead	ug/l	15						5	5
LINDANE	ug/l	0.2						0	0.004
m,p-Xylene (Sum of Isomers)	ug/l							0	0
Magnesium	mg/l							1.2	18
Manganese	ug/l	50	10	3	60	2.5	**180**	0	30
Mercury	ug/l	2	.8	.2	1			**1**	1
Methomyl	ug/l								

Methoxychlor	ug/l	30						0	0.1
METHYL ETHYL KETONE	ug/l							0.4	0.4
METHYL ISOBUTYL KETONE	ug/l							0.4	0.4
METHYL-TERT-BUTYL-ETHER (MTBE)	ug/l	5						0	5
Metolachlor	ug/l							0	0
Metribuzin	ug/l							0	0
MOLINATE	ug/l	20						0	2
MONOCHLOROBENZENE	ug/l	700						0	0.2
Naphthalene	ug/l							0	0
n-Butylbenzene	ug/l							0	0
Nickel	ug/l	100	1	1	4			**10**	**10**
Nitrate	mg/l	45	3.5	0.6	9.6			1	7.9
NITRATE + NITRITE (AS N)	mg/l	10						0.79	0.79
NITRITE (AS N)	mg/l	1						0	0.59
Nitrogen, Nitrate (as N)	ug/l							0.1	2.8
ODOR THRESHOLD @ 60 C	Ton	3						0	1
Oxamyl	ug/l	50						0	0
o-Xylene	ug/l							0	0
Pentachlorophenol	ug/l	1						0	0
Perchlorate	ug/l	6						0	5
Picloram	ug/l	500						0	0
P-ISOPROPYLTOLUENE	ug/l							0	0
POLYCHLORINATED BIPHENYLS (TOTAL PCB'S)	ug/l	0.5						0	0
Potassium	mg/l							3	6.6
PROMETRYN	ug/l							0	1
Propachlor	ug/l								
sec-Butylbenzene	ug/l							0	0
Selenium	ug/l	50	1	1	2			**5**	**5**
Silver	ug/l	100	4	1	5			0	**10**
Simazine	ug/l	4						0	1
Sodium	mg/l							53	83
SOURCE TEMPERATURE C	C							20	31.5

Specific Conductance	us	900				37	546	67	560
Styrene	ug/l	100						0	0
Sulfate	mg/l	250	43	17	99	1.9	**133**	2	**184**
tert-Amyl methyl ether	ug/l							0	0
tert-Butyl alcohol	ug/l							0	0
tert-Butylbenzene	ug/l							0	0
Tetrachloroethene	ug/l	5						0	0.1
Thallium	ug/l	2						1	1
THIOBENCARB	ug/l	1						0	0.8
Toluene	ug/l	150						0	0.2
Total Dissolved Solids	mg/l	500				344	350	310	370
Total Trihalomethanes	ug/l	100						0	57.3
Toxaphene	ug/l	3						0	0.24
trans-1,2-Dichloroethene	ug/l	10						0	0.1
Trichloroethene	ug/l							0	0.2
Trichloroethylene	ug/l	5							
Trichlorofluoromethane	ug/l	150						0	0.2
Turbidity	NTU	5						0.23	0.4
Vanadium	ug/l							24	27
Vinyl chloride	ug/l	0.5						0	0.2
Xylenes	ug/l	1750						0	0.4
Zinc	ug/l	5000	9	5	21			0	**50**

NOTES

1. MFL = millions of fibers per liter

Table B. Comparison of recently collected water quality data from a well west and down gradient of the proposed Alto Recharge Basins to SWP pump-back criteria (rows with shading) and drinking water standards (MCL's). Well number 05N06W35G01. Values shown in **Bold** indicate that the water quality in the well samples was in excess of SWP values. Values shown in bold and dark shading indicate water quality in excess of DHS MCLs. MCL's from Department of Health Services 2003, *Comparison of Federal and State MCLs, updated 09/12/03.* Also *July 29, 2005 amended Secondary Water Standards Table 64449-A.*

CONSTITUENT (BOLD = OFFICIAL MCL OR GUIDELINE, OTHER CONSTITUENTS ARE MONITORED BUT NO OFFICIAL STANDARD EXISTS)	**UNITS**	**MCL**	**SWP 1988-2004**			**MINIMUM AND MAXIMUM VALUES IN WELL SAMPLES**	
			MEAN	**MIN**	**MAX**	**MIN**	**MAX**
1,1,1,2-Tetrachloroethane	ug/l					0	0
1,1,1-Trichloroethane	ug/l	200				0	0
1,1,2,2-Tetrachloroethane	ug/l	1				0	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	1200				0	0
1,1,2-Trichloroethane	ug/l	5				0	0
1,1-Dichloroethane	ug/l	5				0	0
1,1-DICHLOROETHYLENE	ug/l	6				0	0
1,1-Dichloropropane	ug/l					0	0
1,1-Dichloropropene	ug/l					0	0
1,2,3-Trichlorobenzene	ug/l					0	0
1,2,3-Trichloropropane	ug/l					0	0
1,2,4-Trichlorobenzene	ug/l	5				0	0
1,2,4-Trimethylbenzene	ug/l					0	0
1,2-Dichlorobenzene	ug/l	600				0	0
1,2-Dichloroethane	ug/l	0.5				0	0
1,2-Dichloropropane	ug/l	5				0	0.02
1,3,5-Trimethylbenzene	ug/l					0	0
1,3-Dichlorobenzene	ug/l					0	0
1,3-Dichloropropane	ug/l					0	0
1,3-Dichloropropene (Total)	ug/l	0.5				0	0
1,4-Dichlorobenzene	ug/l	5				0	0

1-PHENYLPROPANE (N-PROPYLBENZENE)	ug/l					0	0
2,2-Dichloropropane	ug/l					0	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/l	30				0	0
2,4,5-TP (Silvex)	ug/l	50				0	0
2,4-D	ug/l	70				0	0
2-Chloroethyl vinyl ether	ug/l					0	0
2-Chlorotoluene	ug/l					0	0
3-HYDROXYCARBOFURAN	ug/l					0	0
4-Chlorotoluene	ug/l					0	0
Alachlor	ug/l	2				0	0
Aldicarb	ug/l					0	0
ALDICARB SULFONE	ug/l					0	0
Aldicarb sulfoxide	ug/l					0	0
Aldrin	ug/l					0	0
Alkalinity, Total	mg/l					76	104
Aluminum	ug/l	200	30	4	527	0	100
Antimony	ug/l	6	3	1	5	0	**6**
Arsenic (USEPA)	ug/l	10	2	1	4	2	**14**
Asbestos	MFL[1]	7					
Atrazine	ug/l	1				0	0
Barium	ug/l	1000	50	37	68	0	100
Bentazon	ug/l	18				0	0
Benzene	ug/l	1				0	0
Benzo(a)pyrene	ug/l	0.2				0	0
Beryllium	ug/l	4	1	1	1	0	1
Bicarbonate Alkalinity as CACO3	mg/l					52	110
bis-(2-Chloroethyl)ether	ug/l					0	0
Boron	ug/l	600				0	30
Bromacil	ug/l					0	0
Bromobenzene	ug/l					0	0
Bromochloromethane	ug/l					0	0
Bromodichloromethane	ug/l					0	0
Bromoform	ug/l					0	0

Bromomethane	ug/l					0	0
Butachlor	ug/l					0	0
Cadmium	ug/l	5	4	1	5	0	1
Calcium	mg/l					3.2	16
Carbaryl	ug/l					0	0
Carbofuran	ug/l	18				0	0
Carbon tetrachloride	ug/l	0.5				0	0
Carbonate Alkalinity as CACO3	mg/l					1	24
Chlordane	ug/l	0.1				0	0
Chloride	mg/l	250				3	16
Chloroethane	ug/l					0	0
Chloroform	ug/l					0	0
Chloromethane	ug/l					0	0
Chlorothalonil	ug/l					0	0
Chromium	ug/l	50	5	1	11	0	10
Chromium, Hexavalent	ug/l	50				2.7	3
cis-1,2-Dichloroethene	ug/l	6				0	0
Color	unit	15				0	10
Copper	ug/l	1000	5	2	28	0	**50**
Cyanide	ug/l	150				0	100
Dalapon	ug/l	200				0	0
DI(2-ETHYLHEXYL)ADIPATE	ug/l	400				0	0
DI(2-ETHYLHEXYL)PHTHALATE	ug/l	4				0	0
Diazinon	ug/l					0	0
Dibromochloromethane	ug/l					0	0
DIBROMOCHLOROPROPANE (DBCP)	ug/l	0.2				0	0
Dibromomethane	ug/l					0	0
Dicamba	ug/l					0	0
Dichlorodifluoromethane	ug/l					0	0
Dichloromethane	ug/l	5				0	0
Dieldrin	ug/l					0	0
Dimethoate	ug/l					0	0
Di-n-butyl phthalate	ug/l					0	0

Dinoseb	ug/l	7				0	0
DIQUAT	ug/l	20				0	0
DIURON	ug/l					0	0
ENDOTHALL	ug/l	100				0	0
Endrin	ug/l	2				0	0
Ethylbenzene	ug/l	300				0	0
ETHYLENE DIBROMIDE (EDB)	ug/l	0.05				0	0
ETHYL-TERT-BUTYL ETHER	ug/l					0	0
Fluoride	mg/l	2.0	0.11	0.01	0.55	**0.38**	**0.8**
FOAMING AGENTS (MBAS)	ug/l	500				0	0.05
GLYPHOSATE	ug/l	700				0	0
GROSS ALPHA	pC/L					0	0.4
GROSS ALPHA COUNTING ERROR	pC/L					0.52	2
Hardness (as CaCO3)	mg/l					10	48
Heptachlor	ug/l	0.01				0	0
Heptachlor epoxide	ug/l	0.01				0	0
Hexachlorobenzene	ug/l	1				0	0
Hexachlorobutadiene	ug/l					0	0
Hexachlorocyclopentadiene	ug/l	50				0	0
Hydroxide Alkalinity as CACO3	ug/l					0	3
Iron	ug/l	300	47	5	416	0	100
Isopropylbenzene	ug/l					0	0
Lead	ug/l	15				0	5
LINDANE	ug/l	0.2				0	0
m,p-Xylene (Sum of Isomers)	ug/l					0	0
Magnesium	mg/l					0	2.88
Manganese	ug/l	50	10	3	60	0	30
Mercury	ug/l	2	.8	.2	1	0	1
Methomyl	ug/l					0	0
Methoxychlor	ug/l	30				0	0
METHYL ETHYL KETONE	ug/l					0	0
METHYL ISOBUTYL KETONE	ug/l					0	0
METHYL-TERT-BUTYL-ETHER (MTBE)	ug/l	5				0	5

Metolachlor	ug/l					0	0
Metribuzin	ug/l					0	0
MOLINATE	ug/l	20				0	0
MONOCHLOROBENZENE	ug/l	700				0	0
Naphthalene	ug/l					0	0
n-Butylbenzene	ug/l					0	0
Nickel	ug/l	100	1	1	4	0	**10**
Nitrate	mg/l	45	3.5	0.6	9.6	0.95	3.9
NITRATE + NITRITE (AS N)	mg/l	10				0.578	1.818
NITRITE (AS N)	mg/l	1				0	0.4
Nitrogen, Nitrate (as N)	ug/l					573	573
ODOR THRESHOLD @ 60 C	Ton	3				1	1
Oxamyl	ug/l	50				0	0
o-Xylene	ug/l					0	0
Pentachlorophenol	ug/l	1				0	0
Perchlorate	ug/l	6				0	0
Picloram	ug/l	500				0	0
P-ISOPROPYLTOLUENE	ug/l					0	0
POLYCHLORINATED BIPHENYLS	ug/l	0.5				0	0
Potassium	mg/l					0	1.7
PROMETRYN	ug/l					0	0
Propachlor	ug/l					0	0
sec-Butylbenzene	ug/l					0	0
Selenium	ug/l	50	1	1	2	0	**5**
Silver	ug/l	100	4	1	5	0	**10**
Simazine	ug/l	4				0	0
Sodium	mg/l					55.2	69
SOURCE TEMPERATURE C	C					21.1	29.6
Specific Conductance	us	900				280	650
Styrene	ug/l	100				0	0
Sulfate	mg/l	250	43	17	99	31	87.4
tert-Amyl methyl ether	ug/l					0	0
tert-Butyl alcohol	ug/l					0	0

tert-Butylbenzene	ug/l					0	0
Tetrachloroethene	ug/l	5				0	0
Thallium	ug/l	2				0	0.1
THIOBENCARB	ug/l	1				0	0
Toluene	ug/l	150				0	0
Total Dissolved Solids	mg/l	500				175	292
Total Trihalomethanes	ug/l	100				0	0
Toxaphene	ug/l	3				0	0
trans-1,2-Dichloroethene	ug/l	10				0	0
Trichloroethene	ug/l					0	0
Trichloroethylene	ug/l	5					
Trichlorofluoromethane	ug/l	150				0	0
Turbidity	NTU	5				0.1	1.8
Vanadium	ug/l					54	75
Vinyl chloride	ug/l	0.5				0	0
Xylenes	ug/l	1750				0	0
Zinc	ug/l	5000	9	5	21	0	**50**

NOTES

1. MFL = millions of fibers per liter

Table C. Comparison of *aggregate* water quality data from four wells in the general vicinity of the proposed Oro Grande Wash Basins to SWP pump-back criteria (rows with shading) and drinking water standards (MCL's). Not all water quality elements were evaluated in the samples. Values shown in **Bold** indicate that the water quality in the well samples was in excess of SWP values. Values shown in bold and dark shading indicate water quality in excess of DHS MCLs. MCL's from Department of Health Services 2003, *Comparison of Federal and State MCLs, updated 09/12/03.* Also *July 29, 2005 amended Secondary Water Standards Table 64449-A.*

CONSTITUENT (Bold = Official MCL or Guideline, other constituents are monitored but no official standard exists)	**UNITS**	**MCL**	**SWP 1988-2004**			**MINIMUM AND MAXIMUM VALUES IN WELL SAMPLES (By well number)**							
						MIN				**MAX**			
			MEAN	**MIN**	**MAX**	**13J01**	**M01**	**H01**	**E08**	**13J01**	**M04**	**H01**	**E08**
1,1,1,2-Tetrachloroethane	ug/l												
1,1,1-Trichloroethane	ug/l	200											
1,1,2,2-Tetrachloroethane	ug/l	1											
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	1200											
1,1,2-Trichloroethane	ug/l	5											
1,1-Dichloroethane	ug/l	5											
1,1-DICHLOROETHYLENE	ug/l	6											
1,1-Dichloropropane	ug/l												
1,1-Dichloropropene	ug/l												
1,2,3-Trichlorobenzene	ug/l												
1,2,3-Trichloropropane	ug/l												
1,2,4-Trichlorobenzene	ug/l	5											
1,2,4-Trimethylbenzene	ug/l												
1,2-Dichlorobenzene	ug/l	600											
1,2-Dichloroethane	ug/l	0.5											
1,2-Dichloropropane	ug/l	5											
1,3,5-Trimethylbenzene	ug/l												
1,3-Dichlorobenzene	ug/l												
1,3-Dichloropropane	ug/l												
1,3-Dichloropropene (Total)	ug/l	0.5											
1,4-Dichlorobenzene	ug/l	5											

1-PHENYLPROPANE (N-PROPYLBENZENE)	ug/l												
2,2-Dichloropropane	ug/l												
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/l	30											
2,4,5-TP (Silvex)	ug/l	50											
2,4-D	ug/l	70											
2-Chloroethyl vinyl ether	ug/l					0				0			
2-Chlorotoluene	ug/l												
3-HYDROXYCARBOFURAN	ug/l												
4-Chlorotoluene	ug/l												
Alachlor	ug/l	2											
Aldicarb	ug/l												
ALDICARB SULFONE	ug/l												
Aldicarb sulfoxide	ug/l												
Aldrin	ug/l												
Alkalinity, Total	mg/l					80		100		89			100
Aluminum	ug/l	200	30	4	527	0		1.5		60			10
Antimony	ug/l	6	3	1	5	0		ND		0			ND
Arsenic (USEPA)	ug/l	10	2	1	4	3	**1.6**		**5.7**	**5**	**5.7**		**5.7**
Asbestos	MFL[1]	7											
Atrazine	ug/l	1											
Barium	ug/l	1000	50	37	68	0	7.3		8.4	0	7.3		8.4
Bentazon	ug/l	18											
Benzene	ug/l	1											
Benzo(a)pyrene	ug/l	0.2											
Beryllium	ug/l	4	1	1	1	0			ND	0			ND
Bicarbonate Alkalinity as CACO3	mg/l					93		20		110			20
bis-(2-Chloroethyl)ether	ug/l					0				0			
Boron	ug/l	600					54				54		
Bromacil	ug/l												
Bromide	mg/l		0.21	0.05	0.540		0.16	0.2			0.5	0.3	
Bromobenzene	ug/l												
Bromochloromethane	ug/l												

Bromodichloromethane	ug/l												
Bromoform	ug/l												
Bromomethane	ug/l												
Butachlor	ug/l												
Cadmium	ug/l	5	4	1	5	0			ND	0			ND
Calcium	mg/l					7	23.2		6.2	8	23.2		6.2
Carbaryl	ug/l												
Carbofuran	ug/l	18											
Carbon tetrachloride	ug/l	0.5											
Carbonate Alkalinity as CACO3	mg/l					3	120		80	3	120		80
Chlordane	ug/l	0.1											
Chloride	mg/l	250				8	26	0.5	14	14	60	6.4	14
Chloroethane	ug/l												
Chloroform	ug/l												
Chloromethane	ug/l												
Chlorothalonil	ug/l												
Chromium	ug/l	50	5	1	11	0	**42.9**		ND	0	**42.9**		ND
Chromium, Hexavalent	ug/l	50											
cis-1,2-Dichloroethene	ug/l	6											
Color	unit	15				3			<1	3			<1
Copper	ug/l	1000	5	2	28	0			ND	0			ND
Cyanide	ug/l	150				0				0			
Dalapon	ug/l	200											
DI(2-ETHYLHEXYL)ADIPATE	ug/l	400											
DI(2-ETHYLHEXYL)PHTHALATE	ug/l	4											
Diazinon	ug/l												
Dibromochloromethane	ug/l												
DIBROMOCHLOROPROPANE (DBCP)	ug/l	0.2											
Dibromomethane	ug/l												
Dicamba	ug/l												
Dichlorodifluoromethane	ug/l												
Dichloromethane	ug/l	5											

Dieldrin	ug/l												
Dimethoate	ug/l												
Di-n-butyl phthalate	ug/l												
Dinoseb	ug/l	7											
DIQUAT	ug/l	20											
DIURON	ug/l												
ENDOTHALL	ug/l	100											
Endrin	ug/l	2											
Ethylbenzene	ug/l	300											
ETHYLENE DIBROMIDE (EDB)	ug/l	0.05											
ETHYL-TERT-BUTYL ETHER	ug/l					0				0			
Fluoride	mg/l	2.0	0.11	0.01	0.55		11	0.2	0.39		**27**	1.5	0.39
FOAMING AGENTS (MBAS)	ug/l	500				0.05				0.05			
GLYPHOSATE	ug/l	700											
GROSS ALPHA	pC/L												
GROSS ALPHA COUNTING ERROR	pC/L												
Hardness (as CaCO3)	mg/l					20			22	26			22
Heptachlor	ug/l	0.01											
Heptachlor epoxide	ug/l	0.01											
Hexachlorobenzene	ug/l	1											
Hexachlorobutadiene	ug/l												
Hexachlorocyclopentadiene	ug/l	50											
Hydroxide Alkalinity as CACO3	ug/l					3			0	3			0
Iron	ug/l	300	47	5	416	0	127		ND	0	127		ND
Isopropylbenzene	ug/l												
Lead	ug/l	15				0			ND	0			ND
LINDANE	ug/l	0.2											
m,p-Xylene (Sum of Isomers)	ug/l												
Magnesium	mg/l						13.3		1.5		13.3		1.5
Manganese	ug/l	50	10	3	60	0	**161**		ND	0	**161**		ND
Mercury	ug/l	2	.8	.2	1	0			ND	0			ND
Methomyl	ug/l												
Methoxychlor	ug/l	30											

METHYL ETHYL KETONE	ug/l					0				0			
METHYL ISOBUTYL KETONE	ug/l					0				0			
METHYL-TERT-BUTYL-ETHER (MTBE)	ug/l	5				0				0			
Metolachlor	ug/l												
Metribuzin	ug/l												
MOLINATE	ug/l	20											
MONOCHLOROBENZENE	ug/l	700											
Naphthalene	ug/l												
n-Butylbenzene	ug/l												
Nickel	ug/l	100	1	1	4	0			ND	0			ND
Nitrate	mg/l	45	3.5	0.6	9.6			0.02				0.52	
NITRATE + NITRITE (AS N)	mg/l	10											
NITRITE (AS N)	mg/l	1				0	0.03	0.02	0.86	0	0.03	0.02	0.86
Nitrogen, Nitrate (as N)	ug/l												
ODOR THRESHOLD @ 60 C	Ton	3				1				1			
Oxamyl	ug/l	50											
o-Xylene	ug/l												
Pentachlorophenol	ug/l	1											
pH, laboratory	units					8.6	8.1		9.67	8.8	8.3		9.67
Perchlorate	ug/l	6											
Picloram	ug/l	500											
P-ISOPROPYLTOLUENE	ug/l												
POLYCHLORINATED BIPHENYLS (TOTAL PCB'S)	ug/l	0.5											
Potassium	mg/l					1	5.26		3.6	2	5.26		3.6
PROMETRYN	ug/l												
Propachlor	ug/l												
sec-Butylbenzene	ug/l												
Selenium	ug/l	50	1	1	2	0			ND	0			ND
Silver	ug/l	100	4	1	5	0				0			
Simazine	ug/l	4											
Sodium	mg/l					37	52.6		56	41	52.6		56

SOURCE TEMPERATURE C	C												
Specific Conductance	us	900				230	390	8		240	502	233	
Styrene	ug/l	100											
Sulfate	mg/l	250	43	17	99	5.8		3	34	6.1		36	34
tert-Amyl methyl ether	ug/l					0				0			
tert-Butyl alcohol	ug/l												
tert-Butylbenzene	ug/l												
Tetrachloroethene	ug/l	5											
Thallium	ug/l	2				0			ND	0			ND
THIOBENCARB	ug/l	1											
Toluene	ug/l	150											
Total Dissolved Solids	mg/l	500				150			200	170			200
Total Trihalomethanes	ug/l	100											
Toxaphene	ug/l	3											
trans-1,2-Dichloroethene	ug/l	10											
Trichloroethene	ug/l												
Trichloroethylene	ug/l	5											
Trichlorofluoromethane	ug/l	150											
Turbidity	NTU	5				0.11			0.1	1.7			0.1
Vanadium	ug/l												
Vinyl chloride	ug/l	0.5											
Xylenes	ug/l	1750											
Zinc	ug/l	5000	9	5	21	0			ND	0			ND

NOTES

1. MFL = millions of fibers per liter

Table D. Comparison of water quality data from a well in the vicinity of the proposed Cedar Avenue Basin to SWP pump-back criteria (rows with shading) and drinking water standards (MCL's). Not all water quality elements were evaluated in the samples. Values shown in **Bold** indicate that the water quality in the well samples was in excess of SWP values. Values shown in bold and dark shading indicate water quality in excess of DHS MCLs. MCLs from Department of Health Services 2003, *Comparison of Federal and State MCLs, updated 09/12/03.* Also *July 29, 2005 amended Secondary Water Standards Table 64449-A.*

CONSTITUENT (Bold = Official MCL or Guideline, other constituents are monitored but no official standard exists)	**UNITS**	**MCL**	**SWP 1988-2004**			**MINIMUM AND MAXIMUM VALUES IN WELL SAMPLES**	
			MEAN	**MIN**	**MAX**	**MIN**	**MAX**
1,1,1,2-Tetrachloroethane	ug/l					0	0
1,1,1-Trichloroethane	ug/l	200				0	0
1,1,2,2-Tetrachloroethane	ug/l	1				0	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	1200				0	0
1,1,2-Trichloroethane	ug/l	5				0	0
1,1-Dichloroethane	ug/l	5				0	0
1,1-DICHLOROETHYLENE	ug/l	6				0	0
1,1-Dichloropropane	ug/l					0	0
1,1-Dichloropropene	ug/l					0	0
1,2,3-Trichlorobenzene	ug/l					0	0
1,2,3-Trichloropropane	ug/l					0	0
1,2,4-Trichlorobenzene	ug/l	5				0	0
1,2,4-Trimethylbenzene	ug/l					0	0
1,2-Dichlorobenzene	ug/l	600				0	0
1,2-Dichloroethane	ug/l	0.5				0	0
1,2-Dichloropropane	ug/l	5				0	0
1,3,5-Trimethylbenzene	ug/l					0	0
1,3-Dichlorobenzene	ug/l					0	0
1,3-Dichloropropane	ug/l					0	0
1,3-Dichloropropene (Total)	ug/l	0.5				0	0
1,4-Dichlorobenzene	ug/l	5				0	0
1-PHENYLPROPANE (N-PROPYLBENZENE)	ug/l					0	0

2,2-Dichloropropane	ug/l					0	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/l	30				0	0
2,4,5-TP (Silvex)	ug/l	50				0	1
2,4-D	ug/l	70				0	10
2-Chloroethyl vinyl ether	ug/l					0	0
2-Chlorotoluene	ug/l					0	0
3-HYDROXYCARBOFURAN	ug/l						
4-Chlorotoluene	ug/l					0	0
Alachlor	ug/l	2				0	0
Aldicarb	ug/l						
ALDICARB SULFONE	ug/l						
Aldicarb sulfoxide	ug/l						
Aldrin	ug/l						
Alkalinity, Total	mg/l					60	92
Aluminum	ug/l	200	30	4	527	0	100
Antimony	ug/l	6	3	1	5	0	**6**
Arsenic (USEPA)	ug/l	10	2	1	4	0	**10**
Asbestos	MFL[1]	7				1	1
Atrazine	ug/l	1				0	1
Barium	ug/l	1000	50	37	68	0	**100**
Bentazon	ug/l	18				0	0
Benzene	ug/l	1				0	0
Benzo(a)pyrene	ug/l	0.2					
Beryllium	ug/l	4	1	1	1	0	1.8
Bicarbonate Alkalinity as CACO3	mg/l					72	102.5
bis-(2-Chloroethyl)ether	ug/l					0	0
Boron	ug/l	600					
Bromacil	ug/l					0	0
Bromide	mg/l		0.21	0.05	0.540	0	0
Bromobenzene	ug/l					0	0
Bromochloromethane	ug/l					0	0
Bromodichloromethane	ug/l					0	0
Bromoform	ug/l					0	0

Bromomethane	ug/l					0	0
Butachlor	ug/l						
Cadmium	ug/l	5	4	1	5	0	1.75
Calcium	mg/l					10	13.9
Carbaryl	ug/l						
Carbofuran	ug/l	18				0	5
Carbon tetrachloride	ug/l	0.5				0	0
Carbonate Alkalinity as CACO3	mg/l					0	3
Chlordane	ug/l	0.1				0	0
Chloride	mg/l	250				6	28
Chloroethane	ug/l					0	0
Chloroform	ug/l					0	0
Chloromethane	ug/l					0	0
Chlorothalonil	ug/l						
Chromium	ug/l	50	5	1	11	0	10
Chromium, Hexavalent	ug/l	50					
cis-1,2-Dichloroethene	ug/l	6				0	0
Color	unit	15				3	5
Copper	ug/l	1000	5	2	28	0	**50**
Cyanide	ug/l	150				0	100
Dalapon	ug/l	200					
DI(2-ETHYLHEXYL)ADIPATE	ug/l	400					
DI(2-ETHYLHEXYL)PHTHALATE	ug/l	4					
Diazinon	ug/l					0	0
Dibromochloromethane	ug/l					0	0
DIBROMOCHLOROPROPANE (DBCP)	ug/l	0.2				0	0.01
Dibromomethane	ug/l					0	0
Dicamba	ug/l						
Dichlorodifluoromethane	ug/l					0	0
Dichloromethane	ug/l	5				0	0
Dieldrin	ug/l						
Dimethoate	ug/l					0	0
Di-n-butyl phthalate	ug/l						

Dinoseb	ug/l	7					
DIQUAT	ug/l	20					
DIURON	ug/l						
ENDOTHALL	ug/l	100					
Endrin	ug/l	2				0	0.01
Ethylbenzene	ug/l	300				0	0
ETHYLENE DIBROMIDE (EDB)	ug/l	0.05				0	0.02
ETHYL-TERT-BUTYL ETHER	ug/l					0	0
Fluoride	mg/l	2.0	0.11	0.01	0.55	0.08	0.4
FOAMING AGENTS (MBAS)	ug/l	500				0.002	0.3
GLYPHOSATE	ug/l	700				0	25
GROSS ALPHA	pC/L					0.2	1.4
GROSS ALPHA COUNTING ERROR	pC/L					1.0	1.2
Hardness (as CaCO3)	mg/l					27	40.8
Heptachlor	ug/l	0.01				0	0
Heptachlor epoxide	ug/l	0.01				0	0
Hexachlorobenzene	ug/l	1					
Hexachlorobutadiene	ug/l					0	0
Hexachlorocyclopentadiene	ug/l	50					
Hydroxide Alkalinity as CACO3	ug/l					0	3
Iron	ug/l	300	47	5	416	0	100
Isopropylbenzene	ug/l					0	0
Lead	ug/l	15				0	7
LINDANE	ug/l	0.2				0	0.4
m,p-Xylene (Sum of Isomers)	ug/l					0	0
Magnesium	mg/l					0.7	1.5
Manganese	ug/l	50	10	3	60	0	30
Mercury	ug/l	2	0.8	0.2	1	0	1
Methomyl	ug/l						
Methoxychlor	ug/l	30				0	10
METHYL ETHYL KETONE	ug/l					0	0
METHYL ISOBUTYL KETONE	ug/l					0	0
METHYL-TERT-BUTYL-ETHER (MTBE)	ug/l	5				0	0

Metolachlor	ug/l						
Metribuzin	ug/l						
MOLINATE	ug/l	20				0	2
MONOCHLOROBENZENE	ug/l	700				0	0
Naphthalene	ug/l					0	0
n-Butylbenzene	ug/l					0	0
Nickel	ug/l	100	1	1	4	0	**10**
Nitrate	mg/l	45	3.5	0.6	9.6	0.5	3.2
NITRATE + NITRITE (AS N)	mg/l	10				0.400	0.712
NITRITE (AS N)	mg/l	1				0.4	0.55
Nitrogen, Nitrate (as N)	ug/l						
ODOR THRESHOLD @ 60 C	Ton	3				1	1
Oxamyl	ug/l	50				0	0
o-Xylene	ug/l						
Pentachlorophenol	ug/l	1					
pH, laboratory	units					7.6	8.4
Perchlorate	ug/l	6					
Picloram	ug/l	500				0	0
P-ISOPROPYLTOLUENE	ug/l						
POLYCHLORINATED BIPHENYLS (TOTAL PCB'S)	ug/l	0.5					
Potassium	mg/l					1	7.2
PROMETRYN	ug/l					0	0
Propachlor	ug/l						
sec-Butylbenzene	ug/l					0	0
Selenium	ug/l	50	1	1	2	0	**5**
Silver	ug/l	100	4	1	5	0	**10**
Simazine	ug/l	4				0	1
Sodium	mg/l					23	29.2
SOURCE TEMPERATURE C	C					22	23.9
Specific Conductance	us	900				176	200
Styrene	ug/l	100				0	0
Sulfate	mg/l	250	43	17	99	1.8	10.8

tert-Amyl methyl ether	ug/l					0	0
tert-Butyl alcohol	ug/l						
tert-Butylbenzene	ug/l					0	0
Tetrachloroethene	ug/l	5				0	0
Thallium	ug/l	2				0	1
THIOBENCARB	ug/l	1				0	0.8
Toluene	ug/l	150				0	0
Total Dissolved Solids	mg/l	500				101	123
Total Trihalomethanes	ug/l	100				0	0
Toxaphene	ug/l	3				0.0	0.5
trans-1,2-Dichloroethene	ug/l	10				0	0
Trichloroethene	ug/l						
Trichloroethylene	ug/l	5				0	0
Trichlorofluoromethane	ug/l	150				0	0
Turbidity	NTU	5				0.09	0.24
Vanadium	ug/l						
Vinyl chloride	ug/l	0.5				0	0
Xylenes	ug/l	1750				0	0
Zinc	ug/l	5000	9	5	21	0	**70**

NOTES

1. MFL = millions of fibers per liter

Table E. Comparison of water quality data from a well in the vicinity of the proposed Antelope Wash Basin (downgradient) to SWP pump-back criteria (rows with shading) and drinking water standards (MCL's). Not all water quality elements were evaluated in the samples. Values shown in **Bold** indicate that the water quality in the well samples was in excess of SWP values. Values shown in bold and dark shading indicate water quality in excess of DHS MCLs. MCL's from Department of Health Services 2003, *Comparison of Federal and State MCLs, updated 09/12/03.* Also *July 29, 2005 amended Secondary Water Standards Table 64449-A.*

CONSTITUENT (Bold = Official MCL or Guideline, other constituents are monitored but no official standard exists)	**UNITS**	**MCL**	**SWP 1988-2004**			**MINIMUM AND MAXIMUM VALUES IN WELL SAMPLES**	
			MEAN	**MIN**	**MAX**	**MIN**	**MAX**
1,1,1,2-Tetrachloroethane	ug/l					0	0
1,1,1-Trichloroethane	ug/l	200				0	0
1,1,2,2-Tetrachloroethane	ug/l	1				0	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	1200				0	0
1,1,2-Trichloroethane	ug/l	5				0	0
1,1-Dichloroethane	ug/l	5				0	0
1,1-DICHLOROETHYLENE	ug/l	6				0	0
1,1-Dichloropropane	ug/l					0	0
1,1-Dichloropropene	ug/l					0	0
1,2,3-Trichlorobenzene	ug/l					0	0
1,2,3-Trichloropropane	ug/l					0	0
1,2,4-Trichlorobenzene	ug/l	5				0	0
1,2,4-Trimethylbenzene	ug/l					0	0
1,2-Dichlorobenzene	ug/l	600				0	0
1,2-Dichloroethane	ug/l	0.5				0	0
1,2-Dichloropropane	ug/l	5				0	0
1,3,5-Trimethylbenzene	ug/l					0	0
1,3-Dichlorobenzene	ug/l					0	0
1,3-Dichloropropane	ug/l					0	0
1,3-Dichloropropene (Total)	ug/l	0.5					
1,4-Dichlorobenzene	ug/l	5				0	0
1-PHENYLPROPANE (N-PROPYLBENZENE)	ug/l					0	0

2,2-Dichloropropane	ug/l					0	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/l	30					
2,4,5-TP (Silvex)	ug/l	50					
2,4-D	ug/l	70					
2-Chloroethyl vinyl ether	ug/l					0	0
2-Chlorotoluene	ug/l					0	0
3-HYDROXYCARBOFURAN	ug/l						
4-Chlorotoluene	ug/l					0	0
Alachlor	ug/l	2					
Aldicarb	ug/l						
ALDICARB SULFONE	ug/l						
Aldicarb sulfoxide	ug/l						
Aldrin	ug/l						
Alkalinity, Total	mg/l					60	92
Aluminum	ug/l	200	30	4	527	0	0
Antimony	ug/l	6	3	1	5	0	0
Arsenic (USEPA)	ug/l	10	2	1	4	0	0
Asbestos	MFL[1]	7					
Atrazine	ug/l	1					
Barium	ug/l	1000	50	37	68	0	0
Bentazon	ug/l	18					
Benzene	ug/l	1				0	0
Benzo(a)pyrene	ug/l	0.2					
Beryllium	ug/l	4	1	1	1	0	0
Bicarbonate Alkalinity as CACO3	mg/l					120	120
bis-(2-Chloroethyl)ether	ug/l					0	0
Boron	ug/l	600					
Bromacil	ug/l						
Bromide	mg/l		0.21	0.05	0.540	NA	NA
Bromobenzene	ug/l					0	0
Bromochloromethane	ug/l					0	0
Bromodichloromethane	ug/l					0	0.5
Bromoform	ug/l					0	0

Bromomethane	ug/l					0	0
Butachlor	ug/l						
Cadmium	ug/l	5	4	1	5	0	0
Calcium	mg/l					25	25
Carbaryl	ug/l						
Carbofuran	ug/l	18					
Carbon tetrachloride	ug/l	0.5				0	0
Carbonate Alkalinity as CACO3	mg/l					3	3
Chlordane	ug/l	0.1				0	0
Chloride	mg/l	250				7	8
Chloroethane	ug/l					0	0
Chloroform	ug/l					0	0
Chloromethane	ug/l					0	0
Chlorothalonil	ug/l						
Chromium	ug/l	50	5	1	11	0	10
Chromium, Hexavalent	ug/l	50					
cis-1,2-Dichloroethene	ug/l	6				0	0
Color	unit	15				3	3
Copper	ug/l	1000	5	2	28	0	0
Cyanide	ug/l	150				0	0
Dalapon	ug/l	200					
DI(2-ETHYLHEXYL)ADIPATE	ug/l	400					
DI(2-ETHYLHEXYL)PHTHALATE	ug/l	4					
Diazinon	ug/l						
Dibromochloromethane	ug/l					0	0.5
DIBROMOCHLOROPROPANE (DBCP)	ug/l	0.2				0	0
Dibromomethane	ug/l					0	0
Dicamba	ug/l						
Dichlorodifluoromethane	ug/l					0	0
Dichloromethane	ug/l	5				0	0
Dieldrin	ug/l						
Dimethoate	ug/l						
Di-n-butyl phthalate	ug/l						

Dinoseb	ug/l	7					
DIQUAT	ug/l	20					
DIURON	ug/l						
ENDOTHALL	ug/l	100					
Endrin	ug/l	2				0	0.01
Ethylbenzene	ug/l	300				0	0
ETHYLENE DIBROMIDE (EDB)	ug/l	0.05				0	0.02
ETHYL-TERT-BUTYL ETHER	ug/l					0	0
Fluoride	mg/l	2.0	0.11	0.01	0.55	0.1	0.2
FOAMING AGENTS (MBAS)	ug/l	500				0.05	0.05
GLYPHOSATE	ug/l	700				0	25
GROSS ALPHA	pC/L					0.2	1.4
GROSS ALPHA COUNTING ERROR	pC/L					1.0	1.2
Hardness (as CaCO3)	mg/l					83	83
Heptachlor	ug/l	0.01					
Heptachlor epoxide	ug/l	0.01					
Hexachlorobenzene	ug/l	1					
Hexachlorobutadiene	ug/l					0	0
Hexachlorocyclopentadiene	ug/l	50					
Hydroxide Alkalinity as CACO3	ug/l					3	3
Iron	ug/l	300	47	5	416	0	0
Isopropylbenzene	ug/l					0	0
Lead	ug/l	15				0	0
LINDANE	ug/l	0.2					
m,p-Xylene (Sum of Isomers)	ug/l					0	0
Magnesium	mg/l					5	5
Manganese	ug/l	50	10	3	60	0	0
Mercury	ug/l	2	.8	.2	1	0	0
Methomyl	ug/l						
Methoxychlor	ug/l	30					
METHYL ETHYL KETONE	ug/l					0	0
METHYL ISOBUTYL KETONE	ug/l					0	0
METHYL-TERT-BUTYL-ETHER (MTBE)	ug/l	5				0	0

Metolachlor	ug/l						
Metribuzin	ug/l						
MOLINATE	ug/l	20					
MONOCHLOROBENZENE	ug/l	700				0	0
Naphthalene	ug/l					0	0
n-Butylbenzene	ug/l					0	0
Nickel	ug/l	100	1	1	4	0	00
Nitrate	mg/l	45	3.5	0.6	9.6	4	6
NITRATE + NITRITE (AS N)	mg/l	10					
NITRITE (AS N)	mg/l	1				0	0
Nitrogen, Nitrate (as N)	ug/l						
ODOR THRESHOLD @ 60 C	Ton	3				1	1
Oxamyl	ug/l	50					
o-Xylene	ug/l					0	0
Pentachlorophenol	ug/l	1					
pH, laboratory	units					7.9	8.0
Perchlorate	ug/l	6					
Picloram	ug/l	500					
P-ISOPROPYLTOLUENE	ug/l					0	0
POLYCHLORINATED BIPHENYLS (TOTAL PCB'S)	ug/l	0.5					
Potassium	mg/l					1	1
PROMETRYN	ug/l						
Propachlor	ug/l						
sec-Butylbenzene	ug/l					0	0
Selenium	ug/l	50	1	1	2	0	0
Silver	ug/l	100	4	1	5	0	0
Simazine	ug/l	4					
Sodium	mg/l					16	17
SOURCE TEMPERATURE C	C					22	23.9
Specific Conductance	us	900				230	240
Styrene	ug/l	100				0	0
Sulfate	mg/l	250	43	17	99	3.7	3.9

tert-Amyl methyl ether	ug/l					0	0
tert-Butyl alcohol	ug/l						
tert-Butylbenzene	ug/l					0	0
Tetrachloroethene	ug/l	5				0	0
Thallium	ug/l	2				0	0
THIOBENCARB	ug/l	1					
Toluene	ug/l	150				0	0
Total Dissolved Solids	mg/l	500				150	150
Total Trihalomethanes	ug/l	100				0	1
Toxaphene	ug/l	3				0.0	0.5
trans-1,2-Dichloroethene	ug/l	10				0	0
Trichloroethene	ug/l						
Trichloroethylene	ug/l	5				0	0
Trichlorofluoromethane	ug/l	150				0	0
Turbidity	NTU	5				0.12	0.16
Vanadium	ug/l						
Vinyl chloride	ug/l	0.5				0	0
Xylenes	ug/l	1750				0	0
Zinc	ug/l	5000	9	5	21	0	0

NOTES

1. MFL = millions of fibers per liter

Table F. Comparison of water quality data from a well at the proposed Green Tree Basin to SWP pump-back criteria (rows with shading) and drinking water standards (MCL's). Not all water quality elements were evaluated in the samples. Values shown in **Bold** indicate that the water quality in the well samples was in excess of SWP values. Values shown in bold and dark shading indicate water quality in excess of DHS MCLs. MCL's from Department of Health Services 2003, *Comparison of Federal and State MCLs, updated 09/12/03.* Also *July 29, 2005 amended Secondary Water Standards Table 64449-A.*

CONSTITUENT (Bold = Official MCL or Guideline, other constituents are monitored but no official standard exists)	**UNITS**	**MCL**	**SWP 1988-2004**			**MINIMUM AND MAXIMUM VALUES IN WELL SAMPLES**	
			MEAN	**MIN**	**MAX**	**MIN**	**MAX**
1,1,1,2-Tetrachloroethane	ug/l					0	0
1,1,1-Trichloroethane	ug/l	200				0	0
1,1,2,2-Tetrachloroethane	ug/l	1				0	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	1200				0	0
1,1,2-Trichloroethane	ug/l	5				0	0
1,1-Dichloroethane	ug/l	5				0	0
1,1-DICHLOROETHYLENE	ug/l	6				0	0
1,1-Dichloropropane	ug/l					0	0
1,1-Dichloropropene	ug/l					0	0
1,2,3-Trichlorobenzene	ug/l					0	0
1,2,3-Trichloropropane	ug/l					0	0
1,2,4-Trichlorobenzene	ug/l	5				0	0
1,2,4-Trimethylbenzene	ug/l					0	0
1,2-Dichlorobenzene	ug/l	600				0	0
1,2-Dichloroethane	ug/l	0.5				0	0
1,2-Dichloropropane	ug/l	5				0	0
1,3,5-Trimethylbenzene	ug/l					0	0
1,3-Dichlorobenzene	ug/l					0	0
1,3-Dichloropropane	ug/l					0	0
1,3-Dichloropropene (Total)	ug/l	0.5				0	0
1,4-Dichlorobenzene	ug/l	5				0	0
1-PHENYLPROPANE (N-PROPYLBENZENE)	ug/l					0	0

2,2-Dichloropropane	ug/l					0	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/l	30					
2,4,5-TP (Silvex)	ug/l	50					
2,4-D	ug/l	70					
2-Chloroethyl vinyl ether	ug/l					0	0
2-Chlorotoluene	ug/l					0	0
3-HYDROXYCARBOFURAN	ug/l						
4-Chlorotoluene	ug/l					0	0
Alachlor	ug/l	2				0	0
Aldicarb	ug/l						
ALDICARB SULFONE	ug/l						
Aldicarb sulfoxide	ug/l						
Aldrin	ug/l						
Alkalinity, Total	mg/l					88	94
Aluminum	ug/l	200	30	4	527	0	50
Antimony	ug/l	6	3	1	5	0	**6**
Arsenic (USEPA)	ug/l	10	2	1	4	0	**8**
Asbestos	MFL[1]	7					
Atrazine	ug/l	1				0	0
Barium	ug/l	1000	50	37	68	0	**100**
Bentazon	ug/l	18					
Benzene	ug/l	1				0	0
Benzo(a)pyrene	ug/l	0.2					
Beryllium	ug/l	4	1	1	1	0	1
Bicarbonate Alkalinity as CACO3	mg/l					107	109
bis-(2-Chloroethyl)ether	ug/l						
Boron	ug/l	600				0	0
Bromacil	ug/l					0	0
Bromide	mg/l		0.21	0.05	0.540	NA	NA
Bromobenzene	ug/l					0	0
Bromochloromethane	ug/l					0	0
Bromodichloromethane	ug/l					0	0
Bromoform	ug/l					0	0

Bromomethane	ug/l					0	0
Butachlor	ug/l					0	0
Cadmium	ug/l	5	4	1	5	0	1
Calcium	mg/l					12	15
Carbaryl	ug/l						
Carbofuran	ug/l	18					
Carbon tetrachloride	ug/l	0.5				0	0
Carbonate Alkalinity as CACO3	mg/l					0	1
Chlordane	ug/l	0.1					
Chloride	mg/l	250				7.4	8.9
Chloroethane	ug/l					0	0
Chloroform	ug/l					0	0
Chloromethane	ug/l					0	0
Chlorothalonil	ug/l						
Chromium	ug/l	50	5	1	11	0	10
Chromium, Hexavalent	ug/l	50					
cis-1,2-Dichloroethene	ug/l	6				0	0
Color	unit	15				3	3
Copper	ug/l	1000	5	2	28	0	**50**
Cyanide	ug/l	150				0	100
Dalapon	ug/l	200					
DI(2-ETHYLHEXYL)ADIPATE	ug/l	400					
DI(2-ETHYLHEXYL)PHTHALATE	ug/l	4					
Diazinon	ug/l					0	0
Dibromochloromethane	ug/l					0	0
DIBROMOCHLOROPROPANE (DBCP)	ug/l	0.2				0	0
Dibromomethane	ug/l					0	0
Dicamba	ug/l						
Dichlorodifluoromethane	ug/l					0	0
Dichloromethane	ug/l	5				0	0
Dieldrin	ug/l						
Dimethoate	ug/l					0	0
Di-n-butyl phthalate	ug/l						

Dinoseb	ug/l	7					
DIQUAT	ug/l	20					
DIURON	ug/l						
ENDOTHALL	ug/l	100					
Endrin	ug/l	2					
Ethylbenzene	ug/l	300				0	0
ETHYLENE DIBROMIDE (EDB)	ug/l	0.05				0	0
ETHYL-TERT-BUTYL ETHER	ug/l					0	0
Fluoride	mg/l	2.0	0.11	0.01	0.55	0.1	0.12
FOAMING AGENTS (MBAS)	ug/l	500				0	0.02
GLYPHOSATE	ug/l	700					
GROSS ALPHA	pC/L					0.8	1.5
GROSS ALPHA COUNTING ERROR	pC/L					0.7	0.9
Hardness (as CaCO3)	mg/l					39.6	63.2
Heptachlor	ug/l	0.01					
Heptachlor epoxide	ug/l	0.01					
Hexachlorobenzene	ug/l	1					
Hexachlorobutadiene	ug/l					0	0
Hexachlorocyclopentadiene	ug/l	50					
Hydroxide Alkalinity as CACO3	ug/l					1000	1000
Iron	ug/l	300	47	5	416	0	100
Isopropylbenzene	ug/l					0	0
Lead	ug/l	15				0	5
LINDANE	ug/l	0.2					
m,p-Xylene (Sum of Isomers)	ug/l					0	0
Magnesium	mg/l					1.7	8.1
Manganese	ug/l	50	10	3	60	0	30
Mercury	ug/l	2	.8	.2	1	0	1
Methomyl	ug/l						
Methoxychlor	ug/l	30				0	0
METHYL ETHYL KETONE	ug/l						
METHYL ISOBUTYL KETONE	ug/l						
METHYL-TERT-BUTYL-ETHER (MTBE)	ug/l	5					

Metolachlor	ug/l						
Metribuzin	ug/l					0	0
MOLINATE	ug/l	20				0	0
MONOCHLOROBENZENE	ug/l	700				0	0
Naphthalene	ug/l					0	0
n-Butylbenzene	ug/l					0	0
Nickel	ug/l	100	1	1	4	0	**10**
Nitrate	mg/l	45	3.5	0.6	9.6	2.1	2.7
NITRATE + NITRITE (AS N)	mg/l	10				0.587	0.610
NITRITE (AS N)	mg/l	1				0.4	0.4
Nitrogen, Nitrate (as N)	ug/l						
ODOR THRESHOLD @ 60 C	Ton	3				1	1
Oxamyl	ug/l	50					
o-Xylene	ug/l					0	0
Pentachlorophenol	ug/l	1					
pH, laboratory	units					7.73	8.46
Perchlorate	ug/l	6					
Picloram	ug/l	500					
P-ISOPROPYLTOLUENE	ug/l					0	0
POLYCHLORINATED BIPHENYLS (TOTAL PCB'S)	ug/l	0.5					
Potassium	mg/l					1	1.5
PROMETRYN	ug/l					0	0
Propachlor	ug/l						
sec-Butylbenzene	ug/l					0	0
Selenium	ug/l	50	1	1	2	0	**5**
Silver	ug/l	100	4	1	5	0	**10**
Simazine	ug/l	4				0	0
Sodium	mg/l					22	31
SOURCE TEMPERATURE C	C					22	24.4
Specific Conductance	us	900				208	210
Styrene	ug/l	100				0	0
Sulfate	mg/l	250	43	17	99	6.7	8.7

tert-Amyl methyl ether	ug/l					0	0
tert-Butyl alcohol	ug/l						
tert-Butylbenzene	ug/l					0	0
Tetrachloroethene	ug/l	5				0	0
Thallium	ug/l	2				0	1
THIOBENCARB	ug/l	1				0	0
Toluene	ug/l	150				0	0
Total Dissolved Solids	mg/l	500				116	130
Total Trihalomethanes	ug/l	100				0	0
Toxaphene	ug/l	3					
trans-1,2-Dichloroethene	ug/l	10				0	0
Trichloroethene	ug/l						
Trichloroethylene	ug/l	5				0	0
Trichlorofluoromethane	ug/l	150				0	0
Turbidity	NTU	5				0.08	0.1
Vanadium	ug/l					25	25
Vinyl chloride	ug/l	0.5				0	0
Xylenes	ug/l	1750				0	0
Zinc	ug/l	5000	9	5	21	0	**50**

NOTES

1. MFL = millions of fibers per liter

Table G. Comparison of water quality data from three domestic water wells in the vicinity of the proposed Mojave River Well Field to SWP pump-back criteria (rows with shading) and drinking water standards (MCL's). Wells numbered 04N04W24G01 (south of the well field, 1-mile inland on the west bank), 04N04W01A02 (northern field, east bank) and 04N03W09E01 (east bank). Not all water quality elements were evaluated in the samples. Values shown in **Bold** indicate that the water quality in the well samples was in excess of SWP values. Values shown in bold and dark shading indicate water quality in excess of DHS MCLs. MCL's from Department of Health Services 2003, *Comparison of Federal and State MCLs, updated 09/12/03.* Also *July 29, 2005 amended Secondary Water Standards Table 64449-A.*

CONSTITUENT (Bold = Official MCL or Guideline, other constituents are monitored but no official standard exists)	**UNITS**	**MCL**	**SWP 1988-2004**			**MINIMUM AND MAXIMUM VALUES IN WELL SAMPLES (By Well Number)**					
			MEAN	**MIN**	**MAX**	**MIN**			**MAX**		
						G01	**A02**	**E01**	**G01**	**A02**	**E01**
1,1,1,2-Tetrachloroethane	ug/l					0	0	0	0.5	0	0
1,1,1-Trichloroethane	ug/l	200				0	0	0	0.5	0	0
1,1,2,2-Tetrachloroethane	ug/l	1				0	0	0	0.5	0	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l	1200						0			0
1,1,2-Trichloroethane	ug/l	5				0	0	0	0.5	0	0
1,1-Dichloroethane	ug/l	5				0	0	0	0.5	0	0
1,1-DICHLOROETHYLENE	ug/l	6				0	0	0	0.5	0	0
1,1-Dichloropropane	ug/l					0	0	0	0	0	0
1,1-Dichloropropene	ug/l					0		0	0		0
1,2,3-Trichlorobenzene	ug/l					0	0	0	0	0	0
1,2,3-Trichloropropane	ug/l					0	0	0	0	0	0
1,2,4-Trichlorobenzene	ug/l	5				0	0	0	5	0	0
1,2,4-Trimethylbenzene	ug/l					0	0	0	0	0	0
1,2-Dichlorobenzene	ug/l	600				0	0	0	0.5	0	0
1,2-Dichloroethane	ug/l	0.5				0	0	0	0.5	0	0
1,2-Dichloropropane	ug/l	5				0	0	0	0.5	0	0
1,3,5-Trimethylbenzene	ug/l					0	0	0	0	0	0
1,3-Dichlorobenzene	ug/l					0	0	0	0.5	0	0
1,3-Dichloropropane	ug/l					0	0	0	0	0	0
1,3-Dichloropropene (Total)	ug/l	0.5				0	0	0	0	0	0

1,4-Dichlorobenzene	ug/l	5				0	0	0	0.5	0	0
1-PHENYLPROPANE (N-PROPYLBENZENE)	ug/l					0	0	0	0	0	0
2,2-Dichloropropane	ug/l					0	0	0	0	0	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin	ug/l	30					0	0		0	0
2,4,5-TP (Silvex)	ug/l	50				1	1	0	1	1	0
2,4-D	ug/l	70				1	10	0	10	10	0
2-Chloroethyl vinyl ether	ug/l					0.5	0	0	0.5	0	0
2-Chlorotoluene	ug/l					0	0	0	0	0	0
3-HYDROXYCARBOFURAN	ug/l						0			0	0
4-Chlorotoluene	ug/l					0	0	0	0	0	0
Alachlor	ug/l	2				1	0		1	0	
Aldicarb	ug/l						0			0	
ALDICARB SULFONE	ug/l						0			0	
Aldicarb sulfoxide	ug/l						0			0	
Aldrin	ug/l					0.5			0.5		
Alkalinity, Total	mg/l					68	73	74	70.6	73	74
Aluminum	ug/l	200	30	4	527	0	0	0	100	0	0
Antimony	ug/l	6	3	1	5		0	0		0	0
Arsenic (USEPA)	ug/l	10	2	1	4	**10**	0	2.2	**10**	0	2.2
Asbestos	MFL[1]	7									
Atrazine	ug/l	1				0.4	0		1	0	
Barium	ug/l	1000	50	37	68	**100**	0	0	**500**	0	0
Bentazon	ug/l	18					2			2	
Benzene	ug/l	1				0		0	0.5		0
Benzo(a)pyrene	ug/l	0.2					0	0		0	0
Beryllium	ug/l	4	1	1	1		0			0	
Bicarbonate Alkalinity as CACO3	mg/l					82	89	90.3	86	89	90.3
bis-(2-Chloroethyl)ether	ug/l										
Boron	ug/l	600					0			0	
Bromacil	ug/l					1	0		1	0	
Bromide	mg/l		0.21	0.05	0.540	NA	NA	NA	NA	NA	NA
Bromobenzene	ug/l					0		0	0		0

Bromochloromethane	ug/l					0		0	0		0
Bromodichloromethane	ug/l					0		0	0.5		0
Bromoform	ug/l					0	0.6	0	0.5	0.6	0
Bromomethane	ug/l					0		0	0.5		0
Butachlor	ug/l						0			0	
Cadmium	ug/l	5	4	1	5	1	0	0	5	0	0
Calcium	mg/l					16	26.3	14.1	24	26.3	14.1
Carbaryl	ug/l						0			0	
Carbofuran	ug/l	18					0			0	
Carbon tetrachloride	ug/l	0.5				0	0	0	0.5	0	0
Carbonate Alkalinity as CACO3	mg/l					0	0.23	0	0	0.23	0
Chlordane	ug/l	0.1									
Chloride	mg/l	250				4.2	14.8	8.1	8.2	14.8	8.1
Chloroethane	ug/l					0	0	0	0.5	0	0
Chloroform	ug/l					0	0	0	0.5	0	0
Chloromethane	ug/l					0	0	0	0.5	0	0
Chlorothalonil	ug/l										
Chromium	ug/l	50	5	1	11	**10**	0	0	10	0	0
Chromium, Hexavalent	ug/l	50					0			0	
cis-1,2-Dichloroethene	ug/l	6					0			0	
Color	unit	15				5	0		5	0	
Copper	ug/l	1000	5	2	28	**10**	0	0	**50**	0	0
Cyanide	ug/l	150					0	0		0	0
Dalapon	ug/l	200					10			10	
DI(2-ETHYLHEXYL)ADIPATE	ug/l	400					0			0	
DI(2-ETHYLHEXYL)PHTHALATE	ug/l	4					0			0	
Diazinon	ug/l					0.02	0		1	0	
Dibromochloromethane	ug/l					0	0	0	0.5	0	0
DIBROMOCHLOROPROPANE (DBCP)	ug/l	0.2				0.01	0		0,01	0	
Dibromomethane	ug/l					0	0	0	0	0	0
Dichlorodifluoromethane	ug/l					0	0	0	0.5	0	0
Dicamba	ug/l						1.5			1.5	

Dichloromethane	ug/l	5				0	0	0	0.5	0	0
Dieldrin	ug/l					0.5	0		0.5	0	
Dimethoate	ug/l					1	0		1	0	
Di-n-butyl phthalate	ug/l										
Dinoseb	ug/l	7				0.5	2		0.5	2	
DIQUAT	ug/l	20					4			4	
DIURON	ug/l					1	0		1	0	
ENDOTHALL	ug/l	100					45			45	
Endrin	ug/l	2				0.01	0		0.5	0	
Ethylbenzene	ug/l	300				0	0	0	0.5	0	0
ETHYLENE DIBROMIDE (EDB)	ug/l	0.05				0.02			0.02		
ETHYL-TERT-BUTYL ETHER	ug/l						0	0		0	0
Fluoride	mg/l	2.0	0.11	0.01	0.55	0.26	0.23	0.4	0.4	0.23	0.4
FOAMING AGENTS (MBAS)	ug/l	500				0.02	0	0	0.1	0	0
GLYPHOSATE	ug/l	700					25			25	
GROSS ALPHA	pC/L					0.8			3		
GROSS ALPHA COUNTING ERROR	pC/L					1			2		
Hardness (as CaCO3)	mg/l					50	88		70	88	
Heptachlor	ug/l	0.01									
Heptachlor epoxide	ug/l	0.01									
Hexachlorobenzene	ug/l	1					0			0	
Hexachlorobutadiene	ug/l					0	0	0	0	0	0
Hexachlorocyclopentadiene	ug/l	50					0			0	
Hydroxide Alkalinity as CACO3	ug/l					0	0.007	0	0	0.007	0
Iron	ug/l	300	47	5	416	**100**	0	0	110	0	0
Isopropylbenzene	ug/l					0	0	0	0	0	0
Lead	ug/l	15				5	0	0	10	0	0
LINDANE	ug/l	0.2				0.1	0		1	0	
m,p-Xylene (Sum of Isomers)	ug/l					0	0	0	0	0	0
Magnesium	mg/l					0.9	5.5	8.9	7.9	5.5	8.9
Manganese	ug/l	50	10	3	60	10	3.4	0	30	3.4	0
Mercury	ug/l	2	.8	.2	1	1	0	0	1	0	0
Methomyl	ug/l						0			0	

Methoxychlor	ug/l	30				1	0		10	0	
METHYL ETHYL KETONE	ug/l					1	0	0	20	0	0
METHYL ISOBUTYL KETONE	ug/l					1	0	0	20	0	0
METHYL-TERT-BUTYL-ETHER (MTBE)	ug/l	5					0	0		0	0
Metolachlor	ug/l						0			0	
Metribuzin	ug/l						0			0	
MOLINATE	ug/l	20				2	0		2	0	
MONOCHLOROBENZENE	ug/l	700				0	0	0	0.5	0	0
Naphthalene	ug/l					0			0		
n-Butylbenzene	ug/l					0	0	0	0	0	0
Nickel	ug/l	100	1	1	4		0	0		0	0
Nitrate	mg/l	45	3.5	0.6	9.6	0.7	6.7	5.83	7	9.33	6.2
NITRATE + NITRITE (AS N)	mg/l	10					2.12			2.12	
NITRITE (AS N)	mg/l	1					0	0		0	0
Nitrogen, Nitrate (as N)	ug/l										
ODOR THRESHOLD @ 60 C	Ton	3				0	1		0	1	
Oxamyl	ug/l	50					0			0	
o-Xylene	ug/l					0	0	0	0	0	0
Pentachlorophenol	ug/l	1					0			0.2	
pH, laboratory	units					6.97	7.6	7.33	8.2	7.6	7.33
Perchlorate	ug/l	6									
Picloram	ug/l	500					1			1	
P-ISOPROPYLTOLUENE	ug/l					0	0	0	0	0	0
POLYCHLORINATED BIPHENYLS (TOTAL PCB'S)	ug/l	0.5									
Potassium	mg/l					1	1.5	1.8	1.4	1.5	1.8
PROMETRYN	ug/l					1	0		1	0	
Propachlor	ug/l						0			0	
sec-Butylbenzene	ug/l					0	0	0	0	0	0
Selenium	ug/l	50	1	1	2	**5**	0	0	**5**	0	0
Silver	ug/l	100	4	1	5	**10**	0	0	**10**	0	0
Simazine	ug/l	4				0.4	0		1	0	

Sodium	mg/l					8.3	14.5	13.4	14.6	14.5	13.4
SOURCE TEMPERATURE C	C					12.9			12.9		
Specific Conductance	us	900				150	240	204	290	240	204
Styrene	ug/l	100				0	0	0	0	0	0
Sulfate	mg/l	250	43	17	99	3	16.1	9.3	10	16.1	9.3
tert-Amyl methyl ether	ug/l						0	0		0	0
tert-Butyl alcohol	ug/l						0	0		0	0
tert-Butylbenzene	ug/l					0	0	0	0	0	0
Tetrachloroethene	ug/l	5				0.5	0	0	0.5	0	0
Thallium	ug/l	2					0	0		0	0
THIOBENCARB	ug/l	1				0.8	0		0.8	0	
Toluene	ug/l	150				0	0	0	1	0	0
Total Dissolved Solids	mg/l	500				100	140		290	140	
Total Trihalomethanes	ug/l	100				0	0.6	0	0.5	0.6	0
Toxaphene	ug/l	3				0.5			10		
trans-1,2-Dichloroethene	ug/l	10				0.5	0	0	0.5	0	0
Trichloroethene	ug/l						0			0	
Trichloroethylene	ug/l	5				0	0	0	0.5	0	0
Trichlorofluoromethane	ug/l	150				0	0	0	0.5	0	0
Turbidity	NTU	5				0.05	0.3		4	0.3	
Vanadium	ug/l										
Vinyl chloride	ug/l	0.5				0	0	0	1	0	0
Xylenes	ug/l	1750				0	0	0	4	0	0
Zinc	ug/l	5000	9	5	21	**10**	0	0	**50**	0	0

NOTES

1. MFL = millions of fibers per liter

11. San Bernardino County
Department of Public Works
Naresh P. Varma, Chief
Environmental Management Division
825 East Third Street
San Bernardino, California 92415
Letter dated December 12, 2005

1. Comment: According to the most recent FEMA Flood Insurance rate Maps, the proposed project may cross areas within Zone A, special flood hazard areas which may be inundated by a 100-year storm event, and zone X.

Response: MWA concurs that certain elements of the project may take place within such zones.

2. Comment: The Environmental Management Division, Flood Control Storm Water Program Section has reviewed the DEIR and believes these points need to be addressed.

Response: Comments are addressed, in sequence, below.

2a: Water transfers, using the Mojave River or other natural or unimproved drainage course as a conveyance, should evaluate the potential erosion and sediment transport impacts that are likely to occur. Water transfers should also consider habitat alteration or degradation. The presence of water in larger volumes, for longer periods, and at times not consistent with the existing hydrologic regime, may also modify plant communities and facilitate invasive species.

Response: MWA concurs that these changes may occur in association with some of the proposed project facilities. The DEIR Section 5.14.2 specifically notes that such changes may occur, specifically in Oro Grande Wash, Antelope Wash, Unnamed Wash, and the mainstem Mojave River. Accordingly, in detailed design of facilities, MWA will coordinate the development of facilities in natural or unimproved drainage courses with local and county flood control authorities.

In regard to recharge operations in the mainstem Mojave River, MWA has conducted a 2-year pilot study involving releases from Lake Silverwood, in coordination with County Flood Control and under permits issued by the U.S. Army Corps of Engineers and the California Department of Fish and Game. MWA constructed temporary sand berms in the channel, using soil from the channel, and noted that these berms were rapidly removed by the first moderate natural flow in the river in the fall-winter of 2004-2005. In short, these temporary berms did not constitute a barrier to natural flows. MWA notes that in periods of flood flows, bed erosion would naturally occur, and sediment transport would occur as a result. It is not likely that the temporary berms, constructed of native materials and completely obliterated during the first substantial natural

flow of the season, would have a significant effect on bed movement during periods of high flow.

In Oro Grande Wash and Antelope Wash, the DEIR notes that recharge basins would also be constructed using soils excavated from the wash and that high flows will rapidly erode and redistribute these materials. Because there will be no net fill of these washes, MWA does not predict significant effects related to the construction of these temporary berms. Such berms are a common feature of in-channel recharge systems (for example, at Santa Clara Valley Water District). In addition, MWA notes that the proposed site for recharge in Oro Grande Wash is upstream of a substantial cross-channel berm for the California Aqueduct and the sites for recharge at Antelope Wash will be upstream of an improved road crossing and flood detention basin structure at Ranchero Road. The low berms MWA would construct at these sites would thus be constructed in areas where flows will already be significantly constrained by downstream structures that effectively create flood detention basins. No significant effect from project facilities on flood passage at these sites is thus anticipated.

Off-channel recharge facilities along the Mojave River will also be constructed using soil from the basin site, and will be off the County-maintained flood control channel below Mojave Forks Dam. Design and construction of these facilities will be coordinated with County Flood Control.

The DEIR acknowledges that there may be incidental vegetation growth associated with recharge operations, but also notes that MWA will routinely maintain recharge basins, which will involve removal of in-basin vegetation and fine soils that may accumulate in the basins. MWA also has an on-going cooperative program for removal of invasive phreatophytes along the Mojave River.

2.b: The DEIR states that the unnamed wash may convey up to 500 cfs for extended periods of time (5.14.3) and impacts are described as follows.

> **"Where this flow crosses sands and gravels, there will be erosion and an incised channel will be formed. Once this channel has been formed, erosion will be minimal. Deliveries from the California Aqueduct will be suspended during periods of substantial natural runoff, and thus there will be no change in the peak flow down the channel as a result of the project. The incised channel will contain relatively high flows and reduce the potential for sheet flow across the floodplain. Such sheet flow occurs infrequently and changes in sheet flow distribution should not affect vegetation communities, which consist of desert scrub."**

This description suggest that the erosion and incision would not constitute a significant impact and that once the incised channel was formed, it would be a stable channel configuration. However, basic principles of fluvial geomorphology suggest that the incision will cease only when a base level has been reached, or when the resistance of the bank toe unit becomes less than the bed material, at which point the channel will begin to widen.

Further evaluation, by specialists in fluvial geomorphology, is warranted. An incised channel is not a stable feature, and is a significant impact.

Response: MWA concurs, but notes that the discussion cited in Section 5.14.3 was primarily related to the potential for the project to affect flooding. In this context, the proposed releases down Unnamed Wash do not appear to MWA to constitute a significant effect. In addition, the proposed project description calls for potential channel erosion to be managed by installation of rock energy dissipation structures in areas where flows will have high energy and erosion potential. These structures will be designed with full consideration of fluvial geomorphologic principles.

2c. The evaluation of the effects on plant communities is also inadequate. Some plant species depend on periodic overbank flows to propagate new seedlings. The potential for enhancing habitat for invasive species is not addressed in this section.

Response: These issues are not addressed in this section because they are addressed in Section 5.4.5.2, which includes the following analysis:

> "Approximately 6 to 8 acres of desert wash and desert scrub habitats will be permanently affected by construction of the proposed turnout, canal/or pipeline, drop structures to control erosion, unpaved access and maintenance roads, and small bridges. There will also be a short term loss of non-native grasslands associated with construction of the bridge under Arrowhead Lake Road and the low levees downstream of this road. It is anticipated that long-term operation of the turnout will increase the frequency of flow down the wash and increase the area affected by flow, and that an incised channel may form as a result of more frequent inundation. Deliveries of SWP supplies would occur for extended periods of time, providing surface water and raised groundwater levels adjacent to the centerline of the wash. The result will probably be creation of a permanent sandy-rock bottomed channel with adjacent desert wash shrub habitats. Routine maintenance will be minimal, but the channel will be maintained to exclude vegetation, such as tamarisk, that may result in restrictions in channel flow. The channel and the open space to be conserved by Rancho Las Flores will provide a movement linkage between the Mainstem Mojave River and remaining habitat in the wash and upstream of the wash. The loss of 6 to 8 acres of desert wash habitat resulting from drop structures and maintenance roads would be considered a significant impact."

In addition to drop structures which are a feature of the proposed project to control erosion of the channel, MWA proposes appropriate offsetting mitigation for these effects on desert wash habitat.

With regard to the issue of overbank flow, the draft EIR Section 5.4.5.1 "SWP Delivery via Unnamed Wash" also provides the findings of habitat characterizations based on field surveys of the project in 2005: "Unnamed Wash is good quality desert scrub habitat with some elements of desert wash. The watershed is quite small, flows are infrequent and of short duration, and thus significant desert wash habitats do not now exist." Based on the field surveys of existing habitat conditions, there is no evidence of existing overbank flooding at a level that creates conditions for an wide area of desert wash habitat. Wash habitat is intermittent and confined to a small area about 15-30 feet wide. The adjacent habitat is desert scrub, a community that does not depend on periodic overbank flows for plant propagation. In addition, as noted above, more sustained flows from recharge operations would likely raise groundwater levels adjacent to the channel. This would be more likely to marginally promote some expansion of wash, rather than restricting it.

2d. The potential water quality impacts to groundwater must be fully evaluated, including potential contamination of stormwater from urban activities or land uses. Additionally, the infiltration of surface water in new areas may leach compounds from the existing sediment and pose a groundwater threat (see recent research by the US Geological Survey).

Response: These potential project effects are addressed in substantial detail, with specific reference to recent USGS findings related to leading of minerals during groundwater recharge, in Section 5.13.3 of the DEIR (Water Quality). The DEIR notes that the interaction of SWP supplies with local groundwater basin soils is likely to be beneficial in terms of potential arsenic leaching due to the pH and dissolved oxygen characteristics of State Water Project supplies; comments received from California Department of Water Resources generally concur with this finding. See also additional clarifying information regarding monitoring in the response to comments from the Lahontan Regional Water Quality Control Board.

2e. While these potential impacts are evaluated, and groundwater monitoring is proposed as a mitigation measure, the DEIR does not specify how the project would respond in the event excessive groundwater impacts were detected by monitoring. This response should be specified in the DEIR.

Response: It would not be appropriate or feasible for MWA to attempt to define a management response to an as-yet-to-be defined problem. Because increases in groundwater levels in the Mojave River mainstem are predictable, MWA does address specific response to potential rising groundwater levels in and adjacent to the Mainstem Channel, providing for (a) no in-stream recharge during periods of natural flow and (b) diversion of supplies to off-channel recharge facilities if groundwater levels adjacent to the channel approach 20 feet below channel invert. Management responses to localized effects on groundwater quality will be coordinated with the Lahontan and Colorado RWQCBs, depending on the nature of the monitoring data and the watershed area affected.

3. Comment: Due to the nature of the project, the comments from Water Resources Division made here are general in nature and subject to change when more detailed plans are submitted.

Response: MWA looks forward to working with the Water Resources Division to address design and management of the proposed facilities.

3a: In general, it appears that the DEIR has identified the major concerns of the Flood Control District.

Response: We appreciate DPW's response.

3b: Many of the cities and communities listed above have Flood Control District approved Master Plans of drainage (MPD). We recommend that these MPDs be utilized to protect the alignment of future drainage and flood control facilities.

Response: MWA will work with local communities during design, construction, and implementation of the proposed project facilities.

3c: We recommend that any underground pipes be constructed in a manner not to alter the direction, elevation or capacity of any existing drainage course, and that the line be placed below all drainage course scour depths.

Response: MWA will coordinate with WRD during design and construction of pipelines as appropriate to address these issues.

3d: We recommend that no temporary or permanent obstructions be placed in any drainage course.

Response: Proposed project includes provisions for construction of earthen berms in-channel/in-drainage to spread water across the recharge area. MWA believes that, given the siting of proposed recharge areas, and in coordination with WRD and local agencies, this can be accomplished in a manner such that these berms will not constitute an "obstruction" within a drainage course.

3e: It is assumed that the local agencies will establish adequate provisions for intercepting and conducting the accumulated drainage around or through each site in a manner that will not adversely affect adjacent or downstream properties.

Response: MWA will cooperate with local communities to accomplish this objective.

3f: We recommend that the project incorporate, and the local agencies enforce, the most recent FEMA regulations.

Response: MWA will cooperate with local agencies to comply with FEMA regulations for the proposed project, but has no authority to incorporate FEMA regulations into the proposed project description or enforce those regulations.

3g: If any encroachment on Flood Control District right of way is anticipated, a permit shall be obtained from the District's Flood Control Operations Division, Permit Section. Other on-site or off-site improvements may be recommended which cannot be determined at this time.

Response: As it has in the past, MWA will coordinate with the District to obtain appropriate permits for work within District right-of-way.

3h: Corps of Engineers approval may also be required for work along the Mojave River and Oro Grande Wash. Information regarding this item can be obtained from the Flood Control Operations Division, Permit Section.

Response: MWA will coordinate with Flood Control Operations Division, Permit Section during efforts to obtain all relevant permits for the project.

4. Comment: Should there be any changes to this project, please notify our Department so that we may have the opportunity to comment on the changes.

Response: MWA will inform County DPW of any substantive changes in the proposed project.