

2.2.2 Native American Tribes

**TABLE 2-2
NATIVE AMERICAN TRIBES SUBMITTING COMMENTS**

Commenter	Date of Comment	Signatory and Title
Chemehuevi Indian Tribe	03/14/2012	Charles F. Wood Chairman
Twenty-Nine Palms Band of Mission Indians of California	03/15/2012	Darrell Mike Chairman



A/T_Chemehuevi

Chemehuevi Indian Tribe

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Comments of the
Chemehuevi Indian Tribe
on the
Draft Environmental Impact Report
for the
Cadiz Valley Water Conservation, Recovery, and
Storage Project

Submitted: March 14, 2012

A/T_Chemehuevi

The Cadiz Valley Water Conservation, Recovery, and Storage Project (the Project) is proposed primarily to make available a reliable water supply for Southern California Project participants, to supplement or replace existing supplies and enhance dry-year supply reliability. The Santa Margarita Water district has designated itself as the lead agency under California Environmental Quality Act. The Project participants include themselves, Three Valleys municipal Water District, Golden State Water Company, Suburban Water Systems, Jurupa Community Services District, California Water Service Company and the Arizona and California Railroad.

The proposed Cadiz Project poses a serious threat to the groundwater system underlying the whole of the Cadiz-Fenner basin and the surrounding environment. Among the harms likely to be caused by the Project is catastrophic depletion of the aquifer that could take centuries to remedy. By pumping at a rate that far exceeds the average annual recharge, the Project threatens to substantially draw down the aquifer and dry out the moist lake beds of Bristol and Cadiz lakes. This would create a large area of dried out lake sediment with an enormous potential to generate harmful dust conditions on a significantly larger scale than Owens Lake, which ranks as one of the nation's most conspicuous environmental disasters. In addition, the draining of the aquifer would cause springs in the surrounding mountain ranges to fry up, spelling extinction for the local population of bighorn sheep.

The California Environmental Quality Act has not been complied with. All public agencies responsible for regulating activities affecting the environment shall give prime consideration to preventing environmental damage when carrying out their duties. CEQA is to be interpreted to afford the fullest possible protection to the environment within reasonable scope of the statutory language.

The DEIR fails to adequately describe or assess the objectives of the Cadiz Project. The EIR should describe a range of reasonable alternatives to the proposed Project, and analyze that could feasibly attain the objective of the Project. The stated description and assessment of the project objectives, including the purpose and the need, is woefully inadequate and riddled with omissions and inconsistencies.

The purpose and needs analysis fails to adequately describe or address the opportunities to meet anticipated water demand through water recycling and groundwater recovery programs. There is no discussion of the opportunities identified in the Southern California Comprehensive Water Reclamation and Reuse Study; a 6-year comprehensive effort to identify regional water recycling systems. The 34 regional projects identified by the study and the potential additional supply of water they represent are not considered in the purpose and needs analysis.

The Cadiz Project is described as a water conservation project, which simply captures water that would otherwise evaporate and suggests that "surplus" water would be captured. But the DEIR also acknowledges that the proposed Project would pump stored groundwater far in excess of the annual rate of recharge. These two descriptions are inconsistent with one another. The reality is that the groundwater mining proposed would result in catastrophic hydrologic and biologic consequences because the natural recharge rate of the groundwater system is greatly overestimated.

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The Groundwater Management, Monitoring and Mitigation Plan, as proposed, runs counter to the policy of, and is in violation of, CEQA. This Plan impermissibly defers the identification and evaluation of actual and potential environmental effects to some future date and to some other agency. This Plan defers Santa Margarita Water District's present requirements and duties under CEQA to address potential environmental impacts before the Project; until later when they manifest themselves during the life of the Project.

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Surface water is extremely scarce in the Mojave Desert and consequently the bighorn sheep are heavily dependent for survival on the few existing springs in the mountains surrounding the Cadiz Project. The DEIR contains inadequate consideration of potential impacts to bighorn sheep from the Project. The potential impact of the Project on the groundwater system that supports those springs has significant implications for the bighorn sheep population in the immediate region and possibly to the adjacent population to the north.

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The Cadiz Project will result in significant adverse effects to the bighorn sheep and the desert tortoise, animals that are considered an important cultural resource to the Chemehuevi people who still maintain an important connection to these animals and their ranges. The Chemehuevi Big Horn Sheep Songs describe kinship and hunting preserves and tell of specific special places in the landscape that often included the land stretching from the top of a mountain range through the intervening valley to the top of the next mountain range.

For the Chemehuevi, the importance of the desert tortoise goes beyond protection of an endangered species. We sang a series of traveling songs which told of the indispensable role of the Desert Tortoise in the desert and identified areas where the desert tortoise was to be found. In addition, the desert tortoise was a staple of the Chemehuevi diet.

The DEIR is lacking the kind of detailed description and analysis as required under CEQA. The Agency must recognize the clear weight of expert opinion in the technical literature demonstrating that the extraction of naïve groundwater under the proposed Cadiz Project will exceed the natural rate of recharge and have significant impacts on the groundwater system underlying the Project and the surrounding vicinity.

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The Agency must acknowledge, discuss, and analyze these potential impacts, including cumulative impacts in its Final EIR. In addition, the Agency must comply with the requirements of the Endangered Species Act and the Porter Cologne Act before proceeding with any action.

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Dated: March 14, 2012

Submitted by



Charles F. Wood

Chairman of the Chemehuevi Indian Tribe

Comments of
The Twenty-Nine Palms Band of Mission Indians
on the
Draft Environmental Impact Report
for the
Cadiz Valley Water Conservation, Recovery, and Storage Project

Submitted: March 15, 2012

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I. INTRODUCTION

A. The Commenter

The Native American Land Conservancy (NALC or Commenter) is a 501(C)(3) intertribal organization established in 1998 to preserve and protect natural and cultural heritage sites, areas and landscapes. The NALC holds and manages 2,560 acres in a Preserve in the eastern slopes of the Old Woman Mountains. The Cadiz hydrologic study area encompasses the western slope of the Old Woman Mountains. The NALC offers the following comments to the Cadiz Draft Environmental Impact Report (DEIR).

The Commenter requests that these comments, and all attachments be included as part of the administrative record. The Commenter further requests that all documents, articles, and reports cited in these comments and the attached expert reports and articles be included as part of the administrative record of this action. See Cal. Pub. Resources Code § 21167.7(e); County of Suffolk v. Secretary of Interior, 562 F.2d 1368, 1384, n.9 (2d Cir. 1977) (addressing scope of NEPA administrative record), cert. denied, 437 U.S. 1064 (1978); Silva v. Lynn, 482 F.2d 1282 (1st Cir. 1973) (same); see also Thompson v. United States Dep't of Labor, 885 F.2d 551, 555 (9th Cir. 1989) (administrative record consists of all documents and materials directly or indirectly considered by agency and includes evidence contrary to agency's position). Finally, the Commenter incorporates by reference the comments submitted on the 2001 Cadiz DEIR/S and SEIR/S and all attachments thereto and further requests that those comments and their attachments be included as part of the administrative record.

B. Summary

The Cadiz Valley Water Conservation, Recovery, and Storage Project (Cadiz Project or Project) is proposed primarily to provide an additional water supply for Southern Californian Project Participants, to supplement or replace existing supplies and enhance dry-year supply reliability. The Project has two components. The principal component is a groundwater pumping program, under which an annual average of 50,000 acre-feet of groundwater would be pumped from the basin over a 50 year period for delivery to Project Participants, with an annual maximum of 75,000 acre-feet. Facilities for the first component include a well field, piping system, and a 43 mile conveyance pipeline, monitoring features, other appurtenances and fire suppression mechanisms. A secondary, less definite, component is a still tentative proposal to potentially store imported, under which Project Participants could send surplus surface water supplies to the project area to be recharged via spreading basins and held in storage until needed in future years. This component proposes to store up to one million acre-feet. The second component is only at the conceptual development design stage, and is analyzed primarily at a programmatic level in the DEIR.

Despite the fact that most of the Project infrastructure will be built and operated in, and most of the impacts will occur in, San Bernardino County, the Santa Margarita Water District (SMWD or Agency) has designated itself as the lead agency under the California Environmental Quality Act (CEQA), Cal. Pub. Resources Code § 21000 et seq. Project Participants include SMWD, Three Valleys Municipal Water District, Golden State Water Company, Suburban

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Water Systems, Jurupa Community Services District, California Water Service Company, and the Arizona and California Railroad.

As explained in detail below, the proposed Cadiz Project poses a serious threat to the groundwater system underlying the whole of the Cadiz-Fenner basin and the surrounding environment. Among the harms likely to be caused by the Project is catastrophic depletion of the aquifer that could take centuries, if not millennia, to be remedied. By pumping at a rate that far exceeds the average annual recharge, the project would amount to an aggressive program of groundwater mining that would substantially draw down the aquifer and dry out the moist lake beds, or playas, of Bristol and Cadiz lakes. This would create a large area of dried out lake sediment with an enormous potential to generate harmful dust emissions on a scale comparable to Owens Lake, which ranks as one of the nation's most conspicuous environmental disasters. In addition, the draining of the aquifer could cause springs in the surrounding mountain ranges to dry up, spelling extinction for the local populations of bighorn sheep. Perhaps even more distressing, the vast area of fresh water spreading basins on the Cadiz Project site will be a major attraction for ravens and other birds that will prey on the fragile desert tortoise population in critical habitat areas within the basin. These are only some of the devastating potential environmental impacts from the Cadiz Project, impacts that in practical terms will be permanent and extremely expensive to even attempt to mitigate.

The DEIR does not adequately address these and other serious problems with the Cadiz Project. Indeed the DEIR is woefully inadequate under CEQA and other state and federal laws. Among its most glaring deficiencies, the DEIR is based on a patently deficient description of the Project and the physical conditions and environmental resources in its vicinity, a grossly inadequate assessment of the purpose and need for the Project, and a failure to examine the Project's feasibility and likely adverse environmental impacts. Rather than addressing these issues directly and thoroughly, as required by CEQA, the DEIR simply attempts to sidestep all substantive problems by proposing to defer the identification of problems and the decisions about how to deal with those problems to a future date and to unaccountable committees dominated by the Project Proponent, SMWD, under a vague and inadequate monitoring and management plan. In all these regards, the DEIR fails to comply with CEQA, and for all these reasons the SMWD should reject the proposed Cadiz Project.

II. THE AGENCY HAS FAILED TO COMPLY WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

A. The Legal Requirements of the California Environmental Quality Act

"The California Environmental Quality Act, Cal. Pub. Resources Code § 21000 et seq., is a comprehensive scheme designed to provide long-term protection to the environment. In enacting CEQA, the Legislature declared its intention that all public agencies responsible for regulating activities affecting the environment give prime consideration to preventing environmental damage when carrying out their duties. CEQA is to be interpreted to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." Mountain Lion Foundation v. Fish and Game Comm'n, 65 Cal.Rptr.2d 580, 584 (1997).

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“The environmental impact report, with all its specificity and complexity, is the mechanism prescribed by CEQA to force informed decision making and to expose the decision-making process to public scrutiny. The EIR is, as the courts have said repeatedly, the ‘heart of CEQA,’ ‘an environmental alarm bell,’ and a ‘document of accountability.’ An EIR provides the public and responsible government agencies with detailed information on the potential environmental consequences of an agency’s proposed decision.” Planning and Conservation League v. Department of Water Resources, 100 Cal.Rptr.2d 173, 187-88 (Cal. App. 2000) (citations omitted).

The EIR serves not only to protect the environment but also to demonstrate to the public that it is being protected. CEQA Guidelines § 15003(b). Thus, CEQA requires that the lead agency identify and disclose all of the significant environmental impacts of a proposed project. CEQA Guidelines § 15126.2. CEQA also requires the public agency to consider feasible alternatives to the project which would lessen any significant adverse environmental impact. Cal. Pub. Resources Code §§ 21002, 21081; Planning and Conservation League, 100 Cal.Rptr.2d at 188.

B. The DEIR Fails to Adequately Describe or Assess the Objectives of the Cadiz Project

CEQA Guidelines require that an EIR describe a range of reasonable alternatives to the proposed Project, and analyze those that could feasibly attain the objectives of the Project. See CEQA Guidelines § 15126.6.a, b. As described below, the description and assessment of the project objectives, including the purpose and need for the project, is woefully inadequate and riddled with omissions and inconsistencies.

1. Water Demand

The DEIR contains little discussion of Southern California water demands. The DEIR relies on a vague suggestion that supplies may decline and demand may increase, and proceeds on the assumption that additional supplies are necessary. Without a full evaluation and analysis of future supply and demand, it is not possible to evaluate the need for the project.

2. Conservation Measures

To begin with, the DEIR does not provide sufficient specificity regarding what conservation measures have been, or reasonably can be expected to be, implemented, or how the SMWD makes this assessment. Without this information it is not possible to assess the reasonableness of SMWD’s future demand premise.

Throughout the discussion of the Project’s purpose, the DEIR betrays a bias in favor of obtaining additional water supply rather than pursuing available opportunities for increased water conservation within the Project Participants’ service areas, which would be more cost-effective and more reliable than the environmentally unsustainable groundwater mining program being pushed by SMWD and Cadiz, Inc. The DEIR invokes the potential of drought to show the

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need for improving Project Participants’ supply reliability, and makes clear that improving supply reliability means essentially increasing supply. In contrast, the DEIR does not acknowledge that potential droughts make it just as clear that there is an even greater need for aggressive implementation of conservation in the desert region that makes up its service area. Similarly, SMWD claims that its studies of dry-year demand show the need to enhance water storage and water transfers, but it fails to acknowledge the self-evident fact that the same studies show an even more acute need to enhance conservation.

Another example is the contradiction between the assertion that adequate storage is needed to prevent and offset overdraft of groundwater basins and surface storage during droughts, coupled with the failure to meaningfully address the high probability that the Cadiz Project will result in a catastrophic overdraft of the groundwater basin underlying the Cadiz and Fenner valleys. The bias betrayed in this unbalanced consideration is also evident in the DEIR’s failure to acknowledge that increased conservation measures could more effectively protect against such overdraft of groundwater basins and surface storage, and would do so more sustainably than draining new basins.

The assessment of future demand also is deficient because it gives no consideration to the opportunity to reduce consumption through the use of disincentives for unnecessary, wasteful “discretionary” water usage by higher income households. Rather, the DEIR just passively accepts such wasteful water use by the wealthy.

The discussion of current and projected water conservation measures is remarkably incomplete and vague, again revealing inadequate consideration of this least environmentally harmful and most sustainable approach to avoiding future shortfalls. The reality is that much greater levels of conservation could be accomplished, eliminating the need for the proposed project. Instead of engaging in an evaluation of the conservation alternative, the DEIR, without any justification, simply accepts the notion that conservation cannot possibly eliminate the need for the project.

Although the DEIR claims that Project Participants have embarked on an “aggressive” program of conservation measures, the detail indicates far more modest past and planned efforts. This is astounding given the fact that the Project’s service area lies in what naturally is a desert area, the economic and environmental costs of importing water, and the availability of significant additional feasible, and more cost-effective, conservation measures. While the DEIR fails to provide adequate information for an adequate assessment of Project Participants’ past or planned efforts in conservation, what detail is provided undermines the assertions that conservation has been adequately explored or emphasized.

Because reasonably available additional conservation measures are not addressed at all, and because virtually no meaningfully detailed information is provided for the measures or plans that are mentioned, it is not possible to assess the basis for the DEIR’s rejection of the conservation alternative or need for the project. The sense that conservation has not been thoroughly considered is also reinforced by the fact that figures for projected additional conservation savings are not clearly attributed and are confusingly, and perhaps contradictorily, thrown out.

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3. Water Recycling and Groundwater Recovery Programs

The purpose and needs analysis also fails to adequately describe or address the opportunities to meet anticipated water demand through water recycling and groundwater recovery programs. Specifically, the DEIR does not discuss the opportunities identified in the Southern California Comprehensive Water Reclamation and Reuse (CWRR) Study, a 6-year comprehensive effort to identify regional water recycling systems. The study identified 34 regional projects and estimated that they have the potential to produce approximately 450,000 acre feet per year of new recycled water supply. Such a new supply might well obviate any proposed need or justification for the Cadiz Project. Because these projects and the potential additional supply they represent are not considered in the purpose and need analysis underlying the DEIR, neither the Agency nor the public can make an informed decision regarding the actual need for the Cadiz Project.

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4. Storage Potential of Southern California's Groundwater Basins

In addition, the DEIR fails to adequately describe the available water storage potential of groundwater basins in southern California. Because the DEIR fails even to accurately identify the full scope of storage potential, neither the Agency nor the public can have any confidence that potentially more cost-effective and less environmentally harmful water storage alternatives have been considered. The Association of Groundwater Agencies' guide to conjunctive use of groundwater and surface water in Southern California has documented over 21.5 million acre-feet of additional groundwater storage available in southern California groundwater basins, only one million of which comes from the Cadiz Valley. In other words, there are many places other than Cadiz that offer additional groundwater storage capacity, which could eliminate the need for extraction of indigenous fossil groundwater from the Cadiz-Fenner Basin. Because these potential storage alternatives are not even recognized, let alone evaluated, in the DEIR, it is not possible for the Agency or the public to make an informed judgment as to whether the Cadiz Project represents a reasonable choice among available alternatives.

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Most importantly, the analysis regarding projected storage supply is internally inconsistent and does not support the assessment of need on which the DEIR is premised.

C. The DEIR Fails to Adequately Describe the Cadiz Project and the Physical Conditions and Environmental Resources in Its Vicinity

A complete, adequate description of a proposed project and the physical conditions and environmental resources in the project vicinity is an essential component of an EIR. CEQA Guidelines §§ 15125, 15126.2, subd. (A); *Cadiz Land Co. v. Rail Cycle*, 99 Cal. Rptr.2d 378 (2000); *County of Amador v. El Dorado County Water Agency*, 76 Cal. App. 4th 931, 952 (1999).

1. Deficient Description of the Groundwater Pumping Plan

The DEIR's descriptions of the project are inconsistent. In places, the DEIR describes the Cadiz Project as a water conservation project, which simply captures water that would otherwise evaporate and suggests that "surplus" water would be captured. But the DEIR also acknowledges that the proposed Project would pump stored groundwater far in excess of the annual rate of recharge. These two descriptions are inconsistent with one another. The unacknowledged reality is that the groundwater pumping proposed would amount to groundwater mining resulting in catastrophic hydrologic and biologic consequences as described below. Such a failure to acknowledge this unavoidable reality renders the DEIR's analysis woefully inadequate under CEQA.

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2. Deficient Description of Recharge Rate

The DEIR fails to adequately describe the Cadiz Project because it greatly overestimates the natural recharge rate of the groundwater system. It is commonly agreed that groundwater development, or extraction, must not exceed recharge if the development is to be sustainable. Accordingly, the estimate of recharge becomes critical in any analysis of how a groundwater system will perform. The recharge rate estimate used in the DEIR is directly contradicted by the recharge rate estimates of the USGS, Tim Durbin for San Bernardino County, and Dr. John Bredehoeft, one of the leading authorities on groundwater hydrology or hydrogeology. It also is contradicted by the more recent estimate contained in the Johnson Wright report described below. Because the estimate of recharge in the DEIR is in error, the predictions of system performance are also in error.

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The proposed project DEIR and supporting documentation by Kenny Geoscience does not adequately review hydrogeologic conditions nor adequately assess potential hydrologic impacts of the project. The technical analysis has insufficient detail on key scope areas in order to determine the nature and extent of project impacts. The conceptual model or the numerical representation of the conceptual model is flawed in that it requires hydrogeologically unreasonable parameters to calibrate the numerical flow model. See Johnson Wright Inc., Hydrologic Review of Draft Environmental Report, at 1, 15 (Feb. 1, 2012), attached hereto as Attachment A. Johnson Wright estimated recharge of approximately 14,000 acre feet by employing a discharge evaluation utilizing evapotranspiration rates. Johnson Wright, at 5. This is substantially less than the 32,447 acre feet referenced in the DEIR. There is insufficient documentation to support the figure in the DEIR and additional documentation, including the documentation of the numerical groundwater flow modeling effort is needed. Johnson Wright, at 7. The analysis must address the deficiencies above.

The DEIR asserts that the CH2M Hill's model provided an annual recharge estimate of approximately 32,000 AFY, consisting of 30,191 AFY from the Fenner Watershed and 2,256 AFY from Orange Blossom Wash and on that basis suggests that there will be little or no adverse impact on the groundwater system. However, the great weight of the pertinent technical literature shows that the estimate of annual recharge used in the DEIR is an order of magnitude too high. The DEIR uses estimates made by GeoScience, a consultancy employed by Cadiz, Inc., which stands to be paid hundreds of millions of dollars if the Project is approved. Those

estimates stand in stark contrast to and are an order of magnitude higher than the range of every other estimate of recharge. See John D. Bredehoeft, Comments on the Final EIR/EIS, Cadiz Groundwater Storage Project Cadiz and Fenner Valleys San Bernardino County, California, at 8 (October 2001) (reviewing previous recharge estimates), attached hereto as Attachment B. In 2000 and 2001, John Bredehoeft estimated the recharge in the Fenner/Cadiz Valleys to be on the order of 5,000 AFY. See *id.*, at 3, 4, 8; John D. Bredehoeft, Revised Comments, Cadiz Groundwater Storage Project Cadiz and Fenner Valleys San Bernardino County, California, at 11 (August 2001), attached hereto as Attachment C.

Thus, one of the most basic premises of the Project is seriously flawed. Factoring a more realistic recharge rate into the analysis would make it clear that there will be dramatic drawdown of the groundwater and adverse impacts to the surrounding environment from the proposed Cadiz Project.

The over-estimate of the recharge rate is even more troubling considering the fact that there is evidence that the basin is already overdrafted. A 1996 study by Boyle Engineering concluded that water levels in the vicinity were declining due to existing pumping for irrigation of Cadiz's agricultural operations. Similarly, the court in *Cadiz Land Company, Inc. v. Rail Cycle, L.P.*, 99 Cal. Rptr.2d 378, 389, 392 (Cal. App. 2000), indicated that the system underlying Cadiz is already in a state of overdraft.

D. The DEIR Fails to Adequately Assess the Feasibility of the Cadiz Project

Consideration of feasibility is central to an adequate alternatives analysis under CEQA. See, e.g., *Planning and Conservation League*, 100 Cal.Rptr.2d at 192. However, the DEIR has not adequately considered the feasibility of the Cadiz Project in several regards.

1. California Groundwater Rights Law

California has a correlative system of groundwater rights. All land owners overlying a common aquifer have the right to use the groundwater beneath their property. These "overlying rights" allow a land owner to take groundwater and make reasonable beneficial use of it on their property. *Barstow v. Mojave Water Agency*, 5 P.3d 853, 863 (Cal. 2000). As between overlying land owners, the rights are correlative. Therefore, in times of shortage each land owner is limited to her "reasonable share." *City of Pasadena v. City of Alhambra*, 207 P.2d 17, 29 (Cal. 1949).

If a groundwater supply contains "surplus water," this water may be appropriated by a private party and transported for use outside of the watershed or basin. *Barstow*, 5 P.3d at 863. However, "[p]roper overlying use . . . is paramount, and the right of an appropriator, being limited to the amount of the surplus, must yield to that of the overlying owner in the event of a shortage, unless the appropriator has gained prescriptive rights through the taking of nonsurplus waters."¹ *City of Pasadena*, 207 P.2d at 28-29.

¹Prescriptive rights are not at issue at this point because Cadiz has not yet begun to transport water out of the basin.

Under California law, there is a surplus of water only when the basin is not overdrafted. The Supreme Court of California has defined overdraft in terms of the "safe-yield" of the basin. The safe-yield is the amount of water that can be withdrawn annually from a groundwater supply under a given set of conditions without causing a gradual lowering of the groundwater levels resulting eventually in depletion of the supply. *City of Los Angeles v. City of San Fernando*, 537 P.2d 1250 (Cal. 1975). However, the court has stated that withdrawals may exceed the safe-yield to the extent that the amount will create storage space for "temporary surplus" water normally wasted in wet years. *Id.* Thus, overdraft occurs and there is no surplus for appropriation when extractions exceed the net recharge rate of the aquifer plus any temporary surplus.

There have been prior findings that the groundwater system underlying Cadiz is already in a state of overdraft. The 1996 Boyle study concluded that water levels in the vicinity were declining due to existing pumping for irrigation of Cadiz's agricultural operations. In addition, the court in *Cadiz Land Company, Inc. v. Rail Cycle, L.P.*, 99 Cal. Rptr.2d 378, (Cal. App. 2000), observed that, "Although the CPC and Board conclude the rechargeability of the aquifer water is relatively low and the aquifer is in overdraft, without knowing the volume of water in the aquifer, it cannot be determined how soon depletion will occur." *Id.* at 392 (emphasis added). Thus, there is some evidence that there is an overdraft in the basin and that the county has previously recognized this fact. If this is the case, then Cadiz is legally prohibited from exporting any indigenous groundwater from the basin to the Project Participants. This would render the "transfer" portion of the Project infeasible.

2. Federal Reserved Water Rights

The California Desert Protection Act reserves federal water rights sufficient to fulfill the purposes of the Act for each wilderness area designated by the Act. Pub. L. No. 103-433, § 706(a), 108 Stat. 4471 (1994). This includes five wilderness areas in the vicinity of the Project — Cadiz Dunes Wilderness Area, Clipper Mountains Wilderness Area, Old Woman Mountains Wilderness Area, Sheephole Valley Wilderness Area, Trilobite Wilderness Area. These reserved rights have a priority date of October 31, 1994. In addition the Act requires the Secretary of the Interior and all other officers of the United States to "take all steps necessary" to protect these rights. *Id.* § 706(b). Similarly, units of the National Park System, including Mojave National Preserve are federal reservations that implicitly have federal reserved rights as of the date of the reservation.

These reservations include surface and groundwater. The NPS and BLM have jointly agreed to "participate in local government proceedings that authorize nonfederal parties to withdraw percolating groundwater where such withdrawals may impact water sources within their respective jurisdictions to which federally reserved water rights are attached." Principles Governing Federal Water Rights Under the California Desert Protection Act 2 (1995) (memorandum of understanding signed by representatives of NPS and BLM). In addition, NPS and BLM have agreed to "vigorously defend federally reserved water rights through the state of California process." *Id.* at 1.

However, the draft EIR has not recognized the existence of federal reserved water rights in these areas nor has it addressed the impacts of a potential drawdown of the aquifer on these rights.

Further, the impact to reserved water rights in the National Park units would violate the National Park Service's Organic Act, which provides for unimpairment of park resources. The National Park Service's Organic Act, in part, charges the Service to "conserve the scenery and natural and historic objects and the wildlife therein . . . in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." All of the alternatives considered are likely to withdraw groundwater supplies to the detriment of the protection of park flora and fauna. As explained in detail below, the monitoring system proposed to prevent such impacts from occurring is inadequate and the public land managers are not permitted to provide the oversight necessary to ensure the protection of federal resources.

3. The DEIR Fails to Adequately Assess the Project's Cost-Effectiveness

The DEIR does not contain an examination of the Project's cost-effectiveness. Rather it merely assumes that the Cadiz Project is a cost-effective program. The complete failure to consider this fundamental issue undermines the DEIR's assumption of the Project's feasibility.

Just as the 2001 iteration of the Cadiz project was demonstrated to be economically irrational, see Pacific Institute, Economic Evaluation of the Cadiz Groundwater Storage and Dry Year Supply Project, Metropolitan Water District of Southern California (July 16, 2001), attached hereto as Attachment I, the current proposal is no more economically feasible. Since the original proposal, projected project costs have risen substantially, casting even more doubt on the project's economic feasibility. The DEIR does not discuss the substantial risk that hundreds of millions of dollars will have to be sunk in construction costs for the Project and millions more will be paid up front for indigenous groundwater that might not be extracted at all if the monitoring and management plan confirms the lower recharge rate that is supported by the vast majority of the technical literature. The failure to acknowledge and consider this risk is irrational and renders the feasibility assessment of the Project fatally deficient under CEQA.

Second, additional costs will have to be incurred to treat the extracted groundwater for chromium 6 and arsenic under the new standards that have been adopted by California's Environmental Protection Agency's Office of Environmental Health Hazard Assessment and the U.S. EPA, respectively. This has significant implications for the cost-effectiveness, and thus the feasibility, of the Cadiz Project. But the DEIR does not even identify, let alone evaluate, these foreseeable developments early in the life of the Project or their implications for the Project.

4. Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead

The Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (Interim Guidelines) will govern how "surplus" water will be declared and diverted for use by the lower basin states (California, Nevada, and Arizona). It is not at all certain that Project Participants will be able to store the water (or what

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quantities they would be able to store), undermining the justification for this project. Furthermore, the Interim Guidelines are only in effect for the next 13 years, and thus 50 years of future storage are even more uncertain.

The DEIR does not make any mention whatsoever of the potential for the Interim Guidelines to prevent storage of surplus Colorado River water. Without considering this reasonably foreseeable barrier to Cadiz Project operations, the Agency and the public are unable to make a reasoned, informed determination regarding the Cadiz Project's feasibility, and thus its ability to fulfill its purported purpose.

5. Financial Viability of Cadiz, Inc.

The feasibility of the Cadiz Project is also thrown in doubt by the fact that the financial solvency of Cadiz, Inc. appears to be extremely tenuous. As shown in Cadiz's own SEC filings, including its 10K and 10Q filings, the company has been losing money for some time now. This indicates that Cadiz's agricultural operations are fundamentally unsuccessful, a sham, and that the company is hoping to save itself with windfall profits from the Cadiz Project. This impression is reinforced by the fact that Cadiz has taken only minimal steps to carry out its purported plan to expand its agricultural operations in the Cadiz Valley. Rather, since obtaining initial approval to extract water for that expansion in 1993, Cadiz has almost exclusively sought to export that water from the basin at great profit. Indeed, Cadiz, Inc. appears to be pushing for this Project as a grand boondoggle to reward its speculative investors.

The Agency should be hesitant to rely on such a financially unsound company to operate a Project that requires such substantial public investment up-front and that contains considerable unascertained risks of potentially hugely expensive harmful environmental impacts. Certainly, Cadiz appears to be completely unable to bear any of the additional substantial costs that may necessarily be incurred to mitigate the Project's potential impacts. Because it does not contain any consideration of Cadiz's tenuous financial status, the Agency's assessment of the Cadiz Project's feasibility is uninformed and unreasonable.

E. The DEIR Fails to Consider a Reasonable Range of Alternatives to the Cadiz Project

The California Supreme Court has described the alternatives and mitigation sections as "the core" of an EIR. *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal.3d 553, 564 (1990). The DEIR must analyze alternatives to the proposed project. "[A]n EIR for any project subject to CEQA review must consider a reasonable range of alternatives to the project or to the location of the project." *Id.* at 566; CEQA Guidelines § 15126.6. "The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." CEQA Guidelines § 15126.6(a). The key is "whether the selection and discussion of alternatives fosters informed decisionmaking and *informed public participation*." *Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.*, 47 Cal.3d 376, 404 (1988) (emphasis in original).

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CEQA also requires the public agency to consider feasible alternatives to the project which would lessen any significant adverse environmental impact. Cal. Pub. Resources Code §§ 21002, 21081; Planning and Conservation League, 100 Cal. Rptr.2d at 188. “It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures which would substantially lessen or avoid the significant environmental effects of such projects.” Cal. Pub. Resources Code § 21002; CEQA Guidelines § 15021(a). The CEQA Guidelines specifically prohibit the lead agency from approving a project unless all feasible mitigation and project alternatives have been adopted. CEQA Guidelines § 15091.

The discussion of alternatives in the DEIR fails to consider a reasonable range of alternatives to the Cadiz project. Thus, the discussion is inadequate for the purpose of providing for informed decision making. In addition, the alternatives discussed fail to include any that would avoid significant environmental effects, and therefore violate CEQA. As discussed above in the purpose and need section, the DEIR has failed to include such reasonable alternatives as conservation, water recycling and groundwater recovery, and storage alternatives. Instead, all of the alternatives analyzed are just basic variations of the same project. This narrow focus does not constitute a reasonable range of alternatives.

1. Ward Valley

In addition, the DEIR fails to consider a Ward Valley alternative. Ward Valley has a storage capacity of 14 million acre feet and is 10 miles closer to the Colorado River Aqueduct than the Cadiz Project site. According to the technical feasibility report prepared for MWD in May 1998, a Ward Valley alternative would be comparable in pretty much all other respects. At that time, it was summarily disqualified because it was the proposed site for the low-level radioactive waste disposal site. But that proposal was terminated permanently by the California State Assembly in 2002. Because the proposed nuclear waste site for Ward Valley was dropped, it is unreasonable for SMWD to have excluded it from their consideration of Colorado River water storage alternatives.

2. Desalination

The DEIR fails to consider opportunities to meet anticipated water demand through the construction of more cost effective desalination facilities. In particular, forward osmosis technology is likely to reduce energy costs associated with desalination by as much as 90% within the next 10 years, possibly before the Cadiz Project will even begin to deliver water to Project Participants. Such alternatives call the supposed need for the project into question. See Forward Osmosis desalination articles attached hereto as Attachments D through F.

The DEIR also fails to consider the potential of traditional reverse osmosis desalination facilities, such as either the South Orange Coastal Ocean Desalination (SOCOD) Project or the proposed HB Desalination Project. See South Coast Water District, South Orange Coastal Ocean Desalination Project Page, <http://www.scwd.org/water/potable/oceandesal.asp> (last visited March 14, 2012), attached hereto as Attachment G; Poseidon Resources Press Release, Santa Ana Regional Water Quality Board Unanimously Approves HB Desalination Project (Feb. 10,

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2012), <http://hbfreshwater.com/news/santa-ana-regional-water-quality-control-board-unanimously-approves-hb-desalination-project> (last visited March 14, 2012), attached hereto as Attachment H. Alternative facilities like the SOCOD and HB Desalination Projects could have the potential to make the Proposed Project unnecessary.

3. Conservation

Finally, as described above, the DEIR’s analysis of the conservation alternative is woefully inadequate, because it fails to meaningfully evaluate the effectiveness of current conservation efforts or explore the potential for additional conservation measures that could eliminate the need for the project. With no basis whatsoever, the DEIR simply dismisses the conservation alternative as unworkable or ineffective. Without a meaningful evidence based explanation of why the conservation alternative would not be effective, neither the public nor the agency is able to seriously evaluate whether the conservation alternative has the ability to be effective.

F. The DEIR Fails to Evaluate Fully the Impacts of the Cadiz Project

The CEQA Guidelines provide that, in discussing the environmental effects of a project, the EIR must include “a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences.” CEQA Guidelines § 15151. When the failure to include relevant information precludes informed decision-making and informed public participation, the certification of the EIR constitutes a prejudicial abuse of discretion. *Id.*; Kings County Farm Bureau v. City of Hanford, 221 Cal.App.3d 692, 712 (5th Dist. 1990). “Certification of an EIR which is legally deficient because it fails to adequately address an issue constitutes a prejudicial abuse of discretion regardless of whether compliance would have resulted in a different outcome.” Citizens to Preserve the Ojai v. County of Ventura, 176 Cal. App. 3d 421, 428 (1985).

“The core of an EIR is the mitigation and alternatives sections.” Citizens of Goleta Valley v. Board of Supervisors, 52 Cal. 3d 553, 564 (Cal. 1990). “The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.” Pub. Res. Code § 21002.1. “[T]he CEQA process demands that mitigation measures timely be set forth, that environmental information be complete and relevant, and that environmental decisions be made in an accountable arena.” Oro Fino Gold Mining Corporation v. County of El Dorado, 225 Cal.App.3d 872, 884-885 (3d Dist. 1990). “Mitigation measures must be fully enforceable through permit conditions.” CEQA Guidelines § 15126.4(a)(2) (emphasis added).

“Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified.” CEQA Guidelines § 15126.4(a)(1)(B). “A legally adequate EIR must contain sufficient detail to help ensure the integrity of the process of decisionmaking by precluding stubborn problems or serious criticism from being swept under the rug.” Kings County, 221 Cal.App.3d at 733.

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An agency violates CEQA if it approves a project as proposed when there are feasible mitigation measures available that would substantially lessen any significant environmental effects of the project. Pub. Res. Code § 21002; CEQA Guidelines § 15021(a)(2). A finding of infeasibility cannot be supported simply because the alternative is more costly. “The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical.” Citizens of Goleta, 197 Cal.App.3d at 1181.

1. The DEIR Impermissibly Defers the Identification and Evaluation of Potential Environmental Impacts and the Measures to Mitigate Such Impacts

The Groundwater Management, Monitoring and Mitigation Plan (GMMMP) proposed in the DEIR is inadequate because it impermissibly defers the identification and evaluation of actual and potential environmental effects, as well as mitigation measures to correct such effects, to some future date and to some other agency, specifically the Fenner Valley Mutual Water Company (FVMWC). Such a deferral is inconsistent with the reviewing agency’s duties under CEQA. In addition, the GMMMP is ineffective for several reasons. First, this approach does not take into account the long-term response of the groundwater system to the Project. Second, the three-member Technical Review Panel (TRP) created to make determinations and recommendations with respect to the GMMMP and its purpose to identify and evaluate environmental effects and mitigation measures is fundamentally biased and flawed. Finally, the proposed remedial actions are illusory.

a. Deferral of Environmental Analysis

By relying upon the GMMMP to identify, address, and modify the Project to eliminate or lessen adverse environmental impacts, SMWD has deferred its present duties under CEQA to address potential environmental impacts until they manifest themselves during the life of the Project. This deferral of meaningful consideration of environmental impacts and establishment of the critical issue of recharge violates CEQA.

Deferring assessment of environmental impacts to a future date runs counter to the policy of CEQA that requires environmental review at the earliest feasible stage in the planning process. Cal. Pub. Resources Code § 21003.1; Sundstrom v. County of Mendocino, 248 Cal.Rptr. 352, 358 (Cal. App. 1988). Environmental problems should be considered at a point in the planning process “where genuine flexibility remains.” Mount Sutro Defense Committee v. University of California, 143 Cal.Rptr. 365 (1978). Studies conducted after approval of a project will inevitably have a diminished influence on decision making and, even if subject to administrative approval, such studies are “analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA.” Sundstrom, 248 Cal.Rptr. at 358; No Oil, Inc. v. City of Los Angeles, 118 Cal.Rptr. 34 (1974). “[R]eliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA’s goals of full disclosure and informed decisionmaking; and[,] consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral

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of environmental assessment.” Communities for a Better Environment v. City of Richmond, 184 Cal. App. 4th 70 (Cal. App. 1st Dist. 2010).

The “Environmental Setting, Impacts, and Mitigation Measures” section of the DEIR refers to the GMMMP to provide for the monitoring of the Project and its potential effect on critical resources. The GMMMP “establishes a comprehensive network of monitoring and data collection facilities combined with procedures for comprehensive scientific review of all actions and decisions. The groundwater modeling analysis completed for impacts assessments provide the baseline for future observations and actions.” GMMMP at 9. This reliance on future data to identify potential adverse impacts calls into question the adequacy or comprehensiveness of SMWD’s environmental analysis and mitigation measures set forth in the DEIR.

As indicated in the GMMMP, “[i]f there are deviations from the groundwater modeling projections, those deviations will prompt further investigation and assessment under [the GMMMP], and if necessary, implementation of corrective measures so as to avoid potential adverse impacts to critical resources.” Id. at 11. The GMMMP leaves undefined what threshold levels of deviation are permissible and what levels will trigger the “action criteria” and subsequent decision-making process. Therefore, the monitoring system proposed in the GMMMP will ultimately prove ineffective to avoid undesired impacts as the standards and action criteria are not clearly defined and are left to the discretion of the FVMWC.

Similarly, it is improper for a lead agency under CEQA to defer formulation of mitigation programs by simply requiring some other body to conduct future studies to determine if mitigation is necessary and feasible. Fairview Neighbors v. County of Ventura, 82 Cal.Rptr.2d 436 (1999). The FVMWC is responsible for (i) assessing whether the triggering of any action criteria set forth in the GMMMP is attributable to Project operations, (ii) assessing whether a measured change is a precursor or predictor of a potential adverse impact, and (iii) identifying and implementing appropriate corrective measures. Therefore, SMWD is effectively deferring its responsibility as the lead agency under CEQA to conduct appropriate evaluations of the project, to identify impacts, and to adopt and implement mitigation measures. GMMMP 80. Such deferral of analysis of environmental impacts to a future date and to another agency runs afoul of the requirements of CEQA.

In addition to deferring the analysis of environmental impacts to a later date, the “corrective measures” developed in the GMMMP are illusory as they fail to require the SMWD to (i) correct adverse environmental impacts and (ii) elaborate how such corrections should be made beyond stoppage of pumping. This issue is further discussed below in the “Remedial Action” section.

b. Long Term Effects

The persistent dynamic response of the groundwater system to drawdown has profound implications for the monitoring and management scheme proposed in the DEIR and GMMMP. Indeed, it strongly indicates that the monitoring and management system will not work. Curiously, the DEIR alleges the Project will avoid chronic overdraft and yet simultaneously indicates the Project is intended to pump groundwater in excess of the recharge rate. In addition,

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the DEIR states that the GMMMP will be used to ensure that the Project is managed to avoid adverse impacts for the life of the Project. DEIR 3-16. Yet, the DEIR and GMMMP fail to adequately address the long-term impacts on a groundwater system that is already in a state of overdraft. The DEIR therefore falls short of adequately analyzing and presenting adverse long-term impacts that may result from Project operations.

There is insufficient information about the groundwater elevation change over time which information is needed to evaluate the effectiveness of groundwater monitoring and mitigation plan and its ability to achieve protective procedures for ground water elevation and or spring flow protective measures. It is uncertain which model was used in the spring assessment and discussion of geochemical sampling and a canvass and accounting of existing springs would provide more beneficial information. See Johnson Wright, at 1, 8, 13, 15.

The likely long-term response to the groundwater system to the proposed extraction of native groundwater has been analyzed by Dr. John Bredehoeft (August 2001 study attached). Although the study was drafted based on the Project's earlier 2000 iteration, its analysis is premised on native groundwater extraction rates in excess of natural recharge rates (which is what the project is intended to do) and highlights (i) the long-term impacts of such practice, and (ii) the difficulty of monitoring and managing such impacts. Dr. Bredehoeft concludes that once the groundwater system is perturbed, the effects of the perturbation from pumping will ripple outward though the system slowly with great persistence. The drawdown from pumping will migrate slowly outward from the area of the pumping wells and ground water levels will continue to decline at some distance from the wells for many years, even after pumping has stopped. Thus, the adverse impacts will persist for well over a century even if groundwater extraction is stopped after 50 years or earlier. Consequently, even subtle indications of adverse impacts will not be observed for several decades. As a result, once an adverse impact to the system is observed by the proposed monitoring system, it will be too late to reverse the impact by stopping the pumping. The impacts analysis in the DEIR and GMMMP is limited to 100 years and is therefore woefully inadequate. In addition, any subtle indicators of adverse impacts that may be observable within the 50-year life of the Project may not trigger the action criteria and necessary response.

An analysis of the groundwater system's long term response to the proposed pumping, by Dr. Bredehoeft, reveals that the impacts from the drawdown will persist well beyond 100 years. At 100 years the drawdown beneath Bristol Lake will be more severe than it was at year 50 when the Project is stopped. This drawdown will reduce or eliminate groundwater discharge from major parts of Bristol Lake, which will tend to dry out the lakebed and lead to increased generation of dust from the lake area. The drawdown from the Project operations will also cause the brine to move from under Bristol Lake toward the cone of depression and the project site. This will take time to occur because the cone of depression moves slowly outward from the Project, but once the brine starts moving it will be extremely difficult, if not impossible, to stop.

The report analyzes the effectiveness of monitoring wells. At a monitoring well located halfway between the lake and the project site, it is likely that only a slight increase in dissolved solids will be observed during Project operations. Such slight increases may go undetected as they do not necessarily trigger action criteria. Even if such increases do trigger action criteria,

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they may be partially explained by natural or unusual climatic events and therefore preclude a determination that such triggering action is attributable to the Project or decision to implement appropriate corrective action. By 100 years, long after project operations and monitoring has stopped the concentration of dissolved solids will have risen, *and will still be increasing*.

The slow migration of the drawdown from the Project may also impact springs in the surrounding mountains, with the Marble Mountains most likely to be impacted. These mountains are home to the largest population of bighorn sheep in this region of the Mojave, a population that plays a critical role in sustaining other small sheep populations in the surrounding mountain ranges.

As the project proposes to substantially reduce the volume of groundwater in storage and reduce groundwater levels over much of a large groundwater basin, given the size of the project and of the cone of depression and the fact that it continues to expand even after the life of the project (50 years), by the time impact occurs, as noted by Johnson Wright, it will be too late to make substantive changes in groundwater management to mitigate the problem. Also as noted by Johnson Wright, with absence of a rigorous spring monitoring program, an observed impact will likely be already too late to be protective of the spring and also important associated habitat Johnson Wright, at 14. Thus, even if the extraction is stopped, the drawdown beneath the northern part of Cadiz Lake in the vicinity of the Cadiz Dunes Wilderness Area will continue to increase for many years. The drawdown in this area will greatly reduce or eliminate groundwater discharge to the wilderness area.

The long term nature of the impacts suggests that the early warning signs will be subtle. In addition, the considerable up-front investment in the Project makes it unlikely that subtle early warning signs will be heeded. As discussed below, implementation of corrective action is highly unlikely given the structure of the TRP and the decision-making process, as well as the substantial investment to build the required Project facilities. Close monitoring of water levels and quality in the groundwater system may provide some early warning that the Project is creating adverse environmental impacts even though these impacts may be impossible to stop. These early warning signs of adverse impacts will be very subtle and small drawdowns due to the Project could easily be confused with impacts of nearby pumping or unusual climatic events. Because of the potential for long lasting effects, the Project would have to be halted very early on in order to prevent the significant adverse impacts discussed above. Given the enormous investment of funds necessary before project operations even begin, it is implausible to expect that the SMWD will shut down the Project early in its life where indications of impacts are subtle.

c. Monitoring Committee

The DEIR and GMMMP essentially set up a system where mitigation decisions and corrective actions are made by the Fenner Valley Mutual Water Company (FVMWC), a company that will be formed to deliver water to its shareholders, which are the water companies that will benefit from the Project's native groundwater extraction and which have entered into contracted water subscriptions ranging from 5,000 AFY to 15,000 AFY. The structure of the GMMMP permits FVMWC action prior to review by SMWD. FVMWC has the primary responsibility of collecting, collating, and verifying data. It is also responsible for (i) assessing

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whether the triggering of any action criteria set forth in the GMMMP is attributable to Project operations, (ii) assessing whether a measured change is a precursor or predictor of a potential adverse impact, and (iii) identifying and implementing appropriate corrective measures. GMMMP 80. During each of these stages, FVMWC will submit results of its assessments, determinations, and corrective actions, as well as other notifications to the Technical Review Panel (TRP), a three-member panel. The TRP will evaluate these items and within 30 days of convening, will issue a written report to SMWD, which will make the final determination regarding the assessments and actions already taken.

The makeup of the TRP virtually guarantees that no meaningful remedial action would ever be taken. The three person panel is to have representatives appointed by the FVMWC and the County of San Bernardino (County), with decisions made by 2/3 vote. There is an inherent conflict of interest in this structure. The FVMWC has an interest in continued extraction as it is comprised of Project Participants that have a financial interest in the extraction. It therefore has an incentive to overlook or attribute deviations in groundwater levels or quality to non-Project related factors. In addition, by the time the TRP reports to the SMWD, the FVMWC may have already identified and taken action. If the SMWD disagrees with the FVMWC's assessments or actions, it may order alternative actions. Therefore, the SMWD only superficially makes the final decisions relating to management, monitoring, and mitigation. The process of acknowledging environmental impacts and deciding how to respond to such impacts has been structured so as to favor continued extraction of indigenous groundwater. This is the case even in the event FVMWC and the County cannot agree upon designation of the third member of the TRP and the San Bernardino Superior Court appoints such an individual. The interests represented by the TRP are inherently aligned with extraction and the continued progress of the Project.

The technical review panel overseeing the monitoring and mitigation plan should include local stakeholders as technical representatives from the U.S. Bureau of Land Management, the National Park Service, local landowners and local Indian tribes.

Finally, the GMMMP entrusts the FVMWC and the TRP with a challenging task to gather and assess all data obtained from the monitoring network, as well as implement appropriate corrective actions. The GMMMP provides that only \$50,000 of TRP's costs will be borne by FVMWC per year (escalated by 2% each year). Given the limited funding available and the conflict of interest discussed above, it is questionable whether thorough and adequate monitoring, management, and mitigation can be achieved.

d. Remedial Actions

The GMMMP does not contain adequate triggers, thresholds, or goals to ensure that mitigation measures will be implemented. What is more, even where the DEIR includes quantified triggers (termed "action criteria") for some response, the only response provided for is a process of review and evaluation by the TRP and other bodies subject to the control of SMWD, the Project Proponent. While the GMMMP establishes some quantitative action criteria, many are vaguely defined and therefore ultimately ineffective. The action criteria for the monitoring and management of air quality, land subsidence and brine resources underlying the dry lakes

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include changes in air quality that exceed baseline conditions over a five-year moving average and changes in land subsidence rates and groundwater levels that are greater than projected by simulation models. Inevitably, there will be changes and deviations, both slight and significant, and unfortunately, these broadly-defined triggers provide the FVMWC and the TRP with too much discretion to determine what changes and deviations from baselines and simulation models warrant further review. In addition, as discussed previously, some changes will be subtle and will not be observable during the life of the Project. Such changes will therefore fail to trigger the action criteria and the adverse environmental effects will continue. A comprehensive and thorough monitoring and management plan should include triggers and action criteria that identify changes and deviations that are predictive of harmful environmental effects. This allows the agencies to act in a timely manner to prevent the occurrence of such harmful effects.

For each potential impact that is recognized, but insufficiently analyzed, the GMMMP provides for vaguely defined potential remedial actions to be taken in response to vaguely defined action criteria. The GMMMP takes for granted (i) that the "action criteria" are accurate indicators of potentially adverse environmental impacts, (ii) that such impacts can be halted, reversed, or corrected with or without impact to other environmental or critical resources, and (iii) that the structure of the TRP will appropriately manage the project despite the potential conflicts of interest.

Courts have consistently held that approvals of applications or projects on the basis of a mitigation plan will be upheld only when the mitigation measures significantly compensate for the proposed action's adverse environmental impacts. See *Siskiyou Regional Educ. Project v. Rose*, 87 F. Supp. 2d 1073 (D. Or. 1999). The DEIR is flawed in its overriding assumption that the Project will not cause significant adverse environmental impacts. It relies on the monitoring network described in the GMMMP to collect and analyze future data which is to be used to predict environmental impacts. It is therefore questionable whether the impacts analysis and mitigation measures discussed in the DEIR sufficiently meets the requirements set forth under CEQA. In reality, the long-term nature of the environmental impacts of the Project suggests that the early warning signs will be subtle. This fact alone will preclude the TRP and the SMWD from accurately assessing the Project's environmental impacts, much less devising mitigation measures that significantly compensate for such impacts. It is unreasonable to believe that the GMMMP can establish appropriate mitigation measures based on subtle early warning signs that may not appear until after the life of the Project.

"Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified." CEQA Guidelines § 15126.4(a)(1)(B). The potential remedial actions or so-called "corrective measures" set forth in the GMMMP are superficial and appear to be limited primarily to reduction or halting of Project operations, rather than correcting adverse impacts. For example, the GMMMP lacks specifics or concrete mitigation measures to address subsidence beyond the mere stoppage of pumping. Also, the GMMMP does not discuss the basis for selecting a particular mitigation measure identified. One of the primary corrective measures is modification of wellfield operations. This measure is proposed to address subsidence, induced flow of lower-quality water from nearby dry lakes, changes in groundwater or brine water levels greater than presented in model simulations, and changes in air quality. Modifications include reduction in pumping, revision of pumping

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locations, stoppage of pumping for a period necessary to correct the subsidence, or installation of injection wells. This is the extent of the discussion pertaining to the wellfield modifications. There is little guidance for the FVMWC or TRP to decide which modifications would be most appropriate; rather, decisions are left to the discretion of those entities.

In addition, the GMMMP does not require the TRP or SMWD to select a measure that will at least reduce or halt the adverse impacts. The TRP and SMWD have the discretion to select one or more of the corrective measures presented. Not all of the offered measures lead to elimination of the adverse impacts or correction of such impacts. For example, the TRP and SMWD have the option to pay an impacted well owner for increased material pumping costs (related to induced flow of lower-quality water from the dry lakes)—an option that does not address the adverse impacts of such induced flow.

Courts have held that an agency must analyze mitigation measures in detail and explain how effective the measures would be. Oregon Natural Desert Ass'n v. Singleton, 47 F. Supp. 2d 1182 (D. Or. 1998) (citing Northwest Indian Cemetery Protective Ass'n v. Peterson, 795 F.2d 688, 697 (9th Cir. 1986), rev'd on other grounds, Lyng v. Northwest Indian Cemetery Protective Ass'n, 485 U.S. 439 (1988)). The GMMMP cannot explain whether and how effective the mitigation measures would be because it does not yet have the data to support such discussion. Although these measures would at least slow or halt continued subsidence and other adverse impacts in a particular area in the wellfield, it is unlikely such modifications will correct any adverse impacts that have already begun. The drawdown from pumping will migrate slowly outward from the area of the pumping wells and will continue to decline at some distance from the wells for many years, even after pumping has stopped. The corrective measures presented to address induced flow of lower-quality water from Bristol or Cadiz Dry Lakes goes as far as to make the assumption that these above listed modifications to wellfield operations will actually reestablish the natural hydraulic gradient and background concentrations at the margins of the lakes.

Although modification of wellfield operations would at least slow or halt continued depletion of the aquifer and it is at least theoretically possible, it is not plausible that the TRP and the SMWD would vote to discontinue pumping unless they were legally compelled to do so, given their enormous up-front investment in the Project. In fact, there is actually no requirement that adverse impacts be corrected. Even in the event the TRP and SMWD elect to halt wellfield operations, as the vast majority of the scientific studies make clear, the rate at which the aquifer would replenish itself is extremely slow. Thus, realistically, the best remedial action offered by the GMMMP would do nothing better than allow nature to take centuries or millennia to reverse the harm caused by the Project's depletion of the aquifer. (As an added note, even over the course of millennia, the aquifer will not be able to undo the effects of ground subsidence that may be caused by extracting so much native groundwater.)

Finally, it is clear that the GMMMP and the composition of the TRP are structured so as to minimize the chance of harmful impacts being acknowledged, let alone responded to, and that the purported remedial measures that could be implemented are illusory.

2. The DEIR Fails to Address Adequately Potential Impacts to the Groundwater Basin Underlying the Project

The DEIR presents a woefully inadequate analysis of potential impacts to the aquifer underlying the Project. For example, as discussed previously, the DEIR inadequately addresses the recharge rate for the groundwater system. Thus, there is tremendous potential for drawdown of the aquifer, the effects of which will be felt throughout the area. For example, as discussed above, there may be brine movement toward the Project site. In addition, the water resources of surrounding wilderness areas, national park units, and mountain areas may be affected. Finally, drawdown of the aquifer is likely to lead to subsidence, which will result in the permanent loss of an unknown but potentially significant amount of groundwater storage capacity from the aquifer (or groundwater system). The DEIR fails to adequately address these impacts.

3. The DEIR Fails to Adequately Evaluate Potential Impacts on Air Quality

The DEIR does not contain sufficient data or analysis to allow critical decisions to be made regarding the potential impacts to air quality from the Cadiz Project. Critical areas of concern that have not been adequately addressed are: 1) the potential for drawdown of the brine layer beneath Bristol and Cadiz lakes that will lead to increased dust emissions; 2) the failure to consider the potential for dust emissions from the spreading basins; and 3) the failure to recognize that the impacts to sand and dune areas are likely to expand and result in sand blowing onto the playas of Cadiz and Danby lakes causing increased potential for dust emissions.

Further, the proposed monitoring system and mitigation measures are inadequate to accurately detect dust emission processes or mitigate such impacts because: 1) the instrumentation and measurements proposed are inadequate, 2) the time period for proposed monitoring is too short to reveal potential impacts or compliance with National Ambient Air Quality Standards, 3) the proposed plan for dealing with dust emissions, namely the assumed ability to manipulate the level of the brine layer, is completely ineffective as a dust control measure; 4) the management and monitoring program fails to explore an adequate range of control strategies to mitigate the potential dust problem or to address the associated costs, and 5) the monitoring plan is insufficient to address the impacts on the Mojave National Preserve.

a. Inadequacy of Analysis of Dust Emissions

The DEIR fails to adequately assess the potential for dust emissions from Bristol and Cadiz lakes caused by the Cadiz Project. For instance, an analysis of the surface sediment characteristics and the brine water chemistry of Bristol and Cadiz lakes is necessary for an understanding of the potential for the lake beds to become susceptible to dust emissions. However, there is little information regarding the chemical composition of the brine beneath Bristol and Cadiz lakes or the surface crust on the lake beds.

The DEIR also completely fails to address potential dust emissions from the Project's spreading basins. The DEIR makes the conclusory assertion that the spreading basins will not contribute significantly to dust emissions in the surrounding environment. In fact, there is a high

probability of emissions from the spreading basins at levels significantly greater than the DEIR suggests. First, the basins will regularly accumulate substantial amounts of sediment. The removal and handling and storage of these large amounts of fine-grained sediments would produce significant amounts of dust and raises concerns about how this material would be stored to prevent it from becoming an additional source of dust.

Thus, estimates for the sediment yield in the spreading basins are critical to determine the impacts on air quality based on the scale of the removal and handling operations and the actions required to safely store this material in a manner that does not leave it susceptible to entrainment by the wind. However, the DEIR does not provide any estimate of the amount of sediment that would have to be removed from the spreading basins. Consequently, the assertion regarding the impact of its removal on air quality is unsupported by factual information and arbitrary.

In addition, the statement in the DEIR that the basins will not contribute higher levels of dust when they are not filled with water than the surrounding desert land is extremely dubious. This is so because the fine-grained sediment that will have accumulated on the surface of the basins will likely be inherently more susceptible to wind erosion and dust emissions than the surrounding desert lands that are characterized by a degree of surface armoring. The spreading basins also will be devoid of vegetation, which will make them more likely to omit dust at lower wind speeds than surrounding desert surfaces. These factors have not been addressed in the DEIR and are directly at odds with the conclusory assertion in those documents that the basins will not emit significantly more dust than the surrounding desert.

Finally, it is clear from the DEIR that construction of the conveyance facilities for the Project will both temporarily and permanently disturb significant areas within the Cadiz Dunes. These sandy soil types are extremely sensitive to wind erosion and their disturbance can create significant degradation of the local and regional environments. There is a high probability that the disturbance will expand beyond the initial zone of disturbance as sand is blown by the winds. Further, sand from the disturbed areas of the dunes will be susceptible to being blown onto Cadiz and Danby lakebeds where it could cause significantly increased dust emissions.

The failure to address these serious dust emission impacts was first raised in relation to the similar, earlier iteration of the Cadiz Project over a decade ago. See Dr. John A. Gillies, Review of Draft Environmental Impact Report/Environmental Impact Statement and Supplement to the Draft EIR/EIS Cadiz Groundwater Storage and Dry-Year Supply Program (Jan. 7, 2001).

b. Inadequacy of Management, Monitoring, and Mitigation Plan

The monitoring plan proposed in the DEIR and GMMMP is deficient because the mitigation measures are inadequate to accurately detect dust emissions or mitigate such impacts. First, the proposed instrumentation for the monitoring network is plainly inadequate. The proposed exclusive use of nephelometers would assure high levels of uncertainty in assessing particulate matter loading. Because compliance with air quality standards depends on actual measurement of particulate matter, the plan should use instrumentation in accordance with Federal Reference Method, or accepted equivalent, to ensure that it adequately monitors relevant conditions on the playas. In addition, the monitoring plan does not provide for any measurement

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of saltation activity on the lake beds. Yet saltation is the key component of the dust emission process, effectively driving most of the dust emissions. Further, the corrective measures proposed in the DEIR to ameliorate potential impacts that lead to dust emissions are limited to the wellfield modifications discussed above and are not adequate. None of the proposed mitigation measures can provide the means to control a weather driven process like dust emissions.

In order to use the brine layer to mitigate the dryness of the lakebeds and dust emissions, a management plan would have to be developed that would ensure the brine layer was effectively contributing sufficient moisture to the surface layer when the lakebeds were most susceptible to wild erosion. This has not been done. Further, the brine layer cannot be effectively manipulated via the groundwater system to mitigate potential dust emissions because the groundwater system cannot respond quickly enough. Even if pumping were stopped or fresh water were pumped into the groundwater system, there almost certainly would be a time lag of months or years before the desired response in the brine layer could be expected. Thus, these measures plainly would not be effective in responding to weather conditions likely to cause increased dust emissions, which would require responses within hours or a few days at the longest. Moreover, given the demands for water extraction from the Project and the economics of maintaining a cost-effective water delivery schedule, it is implausible that the corrective measures would be implemented.

Before the Cadiz Project can be approved, the Agency must evaluate concrete mitigation actions designed to minimize dust emissions from Cadiz and Bristol lakes. The actions presently being carried out at Owens Lake appear to be the best and most obvious model for appropriate measures to control dust emissions from the playas. The costs associated with an effective dust control system on a playa are quite substantial; to date, the cost of a system to control dust emissions at Owens Lake have come to approximately a billion dollars. The DEIR has failed to consider the large potential costs involved in developing and implementing an effective system for the management and control of potential dust emissions, or who will bear those costs.

Until these concerns are adequately addressed, the Agency cannot make a reasoned, informed determination of the Cadiz Project's potential to cause significant adverse impacts to air quality and the potential future costs associated with the mitigation of those problems.

4. The DEIR Fails to Adequately Assess Impacts to the Desert Tortoise Population in the Vicinity of the Project

The DEIR fails to adequately address the impacts of the Project on the desert tortoise, a Federal and State listed endangered species. In addition, the DEIR fails to adequately address the implications of § 7 and § 9 of the Endangered Species Act.

The DEIR fails to mention the potential for increased predation of the desert tortoise due to the addition of water sources that will attract ravens. Ravens are a significant predator for juvenile tortoises. Desert Tortoise (Mojave Population) Recovery Plan 6 (1994). The Project will result in the addition of hundreds of acres of spreading basins in the project area. The Fish and Wildlife Service has recognized that "artificial sources of food and water help sustain more individuals during times of resource shortage." Id. App. D, at. 34. Thus, the addition of these

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water sources will lead to increased raven populations in the Project area. In addition, the recovery plan recognized that raven populations are already increasing in the Fenner Valley. *Id.* App. F, at. 11. The increase in raven populations and the resulting increased predation on juvenile tortoises is a significant impact that has not been addressed through the CEQA process.

5. The DEIR Fails to Adequately Address Potential Impacts on Bighorn Sheep Populations in the Vicinity of the Project

The DEIR contains inadequate consideration of potential impacts to bighorn sheep from the Project. Indeed, the DEIR considered only potential direct impacts to bighorn sheep from the construction of facilities for the Project and in the specific areas where these facilities would be located. The DEIR fails to acknowledge potential impacts from the Project drawdown of native groundwater on springs in the mountains in the vicinity of the Project. The DEIR even goes as far as to suggest that the project will have no impact whatsoever on the springs relied on by bighorn sheep. The DEIR also failed to consider the Project effects on bighorn habitat and on bighorn inter-mountain movement through wildlife corridors.

As recited in the DEIR, Nelson's Bighorn sheep inhabit portions of the project area. The Bighorn's preferred ranges and habitat are within the higher elevations but they traverse the valley through movement areas that connect these preferred range areas. The DEIR identifies bighorn sheep populations in the Old Woman Mountains, the Iron Mountains, the Ship Mountains, the Calumet Mountains and the Markham Mountains as well as intermountain movement corridors between these (DEIR fig 4.4-4).

Surface water is extremely scarce in the Mojave Desert and consequently the bighorn sheep are heavily dependent for survival on the few existing springs in the mountains surrounding the Cadiz Project. Consequently, the potential impact of the Project on the groundwater system that supports those springs has significant implications for the bighorn sheep metapopulation in the region surrounding the Project site and possibly the adjacent metapopulation to the north.

If the extraction of indigenous groundwater from the basin causes the springs in the surrounding mountain ranges to dry up, or greatly reduces their flow, bighorn sheep populations in those ranges can be expected initially to shrink to small numbers. The probability of extinction increases with declining population size. Eventually, this is likely to head the collapse of at least this portion of the South Central Metapopulation of bighorn sheep in the Mojave Desert as the small local populations go extinct and are not recolonized because of the small number of total sheep in the region.

Bighorn sheep favor mountainous habitat that is often naturally discontinuous and their population consists of a network of many populations connected through intermountain movement. Epps identifies intermountain corridors for bighorn that are important stepping stones of mountain habitat. Epps indicates that intermountain movement is essential for the persistence of population by making use of vacant habitat and genetic diversity. Therefore, mountain and intermountain habitat are of equal importance to the long term conservation of the sheep and conservation will be dependent on prevention of further population fragmentation while

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attempting to bridge existing barriers Epps, Desert Bighorn Sheep Habitat in California, (May 2011).

The BLM has designated several regional wildlife movement corridors connecting occupied bighorn sheep habitat. As recited in the DEIR, movement corridors may provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range. As shown in Figure 4.4-4 of the DEIR, these designated movement areas overlay the Project area. According to the DEIR, a regional movement corridor connects occupied bighorn sheep habitat between the Old Woman Mountains and the Iron Mountains to the south. Epps cites historical evidence of movement by male and female bighorn sheep between the Old Woman Mountains and the Iron Mountains to the south. Epps, Using Genetic Tools to Track Desert Bighorn Sheep Colonizations, 523 (2010). This corridor crosses Danby Dry Lake and is bisected by the ARZC rail line and Cadiz Rice Road. A larger regional movement corridor connects the Iron Mountains and the Calumet Mountains to the west. The power transmission line running north-south across Danby Dry Lake crosses suitable habitat at the southern edge of the Iron Mountains. A movement corridor connecting occupied bighorn sheep habitat between the Marble Mountains and the Ship Mountains to the southeast traverses the Project spreading basin and well field areas. This corridor is bisected by the mainline of the BNSF, Historic Route 66 and other roads. Schulyer Wash, which occurs southeast of the Project spreading basins, is a likely stopping point for wildlife that may be traveling between the Marble and Ship Mountains.

The regulatory framework recognizes the importance of wildlife movement corridors, which are considered an important ecological resource by various agencies (CDFG, USFWS, United States Forest Service [USFS]) and under CEQA. Based on the *CEQA Guidelines*, Appendix G, a project may be deemed to have a significant effect on the environment with respect to biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
2. Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS;
3. Interfere substantially with the movement of any native resident or wildlife species or with established native resident or migratory native wildlife corridors, or impeded the use of wildlife nursery sites.

As recited in the DEIR, direct impacts to biological resources are considered to be those that involve the loss, modification, or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals). The

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collective loss of individuals in these manners may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and, hence, population stability. Indirect impacts are considered to be those that involve the effects of increase in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., ravens, domestic cats, and other non-native animals), and competitors (e.g., exotic plants, non-native animals).

As noted in the DEIR under existing conditions, wildlife traverses the open valleys unimpeded except for the linear transportation and utility corridors that traverse the valleys. Movement corridors can be affected by linear structures such as highways, walls, and fences.

The DEIR analysis finds that open-space is crucial for the survival and movement of wildlife species. The DEIR discussion indicates that the proposed Project would modify some of the movement corridor land by constructing roadways and fenced well pads, but it would not restrict wildlife movement within the area. The areas between well pads would be maintained to provide unimpeded movement through the valley. The proposed pipeline route would result in temporary impacts along the already existing ROW and adjacent to railroad tracks during construction, but would not further restrict wildlife movement once construction is complete. The DEIR posits that effects would be temporary and not impede movement as the pipeline would be constructed in segments. Temporary exclusion fencing installed as mitigation would be erected in segments and would not impede movement across the valley. According to the DEIR once installed, no linear fencing would be installed that could impede wildlife movement. Well field construction would be located near already existing agricultural practices and though the well pads would be fenced, as described above, it would not inhibit wildlife movement. Also according to the DEIR the proposed well field would be located within a BLM-designated bighorn sheep movement corridor. Construction at the well field would involve grading roads and wellpads, drilling wells, and installing underground electric and water pipelines. Electric lines may also be overhead. The new 25-foot wide roadways would not be paved or fenced.

The DEIR finds that once constructed, the project would not impede wildlife movement, and that there would be no significant effect. The DEIR analysis considers barriers to movement but is deficient in that it does not consider how modification of the movement corridor would affect corridor habitat. As pointed out above there is insufficient information to determine the extent of hydrologic effects and resulting effects on springs and habitat. Specifically there is insufficient information to determine impacts on vegetation and critical habitat for the bighorn sheep and the effects on the bighorn's critical intermountain habitat. There is likely to be a significant adverse effect that must be addressed in the DEIR. Without such information, neither SMWD nor the concerned public can make an informed decision. A plan should be developed to monitor and mitigate if possible, the affect on Bighorn sheep habitat as the project progresses.

6. The DEIR Fails to Adequately Evaluate Potential Impacts on Wilderness Areas and Mojave National Preserve and Joshua Tree National Park

If the drawdown of groundwater dries out the lake beds and causes large scale dust emissions, this is likely to cause dramatic adverse impacts to air quality in some or all of the five

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wilderness areas that surround the project site, the Mojave National Preserve, and possibly Joshua Tree National Park. The DEIR defers meaningful discussion of such potential air quality impacts and their mitigation to the future and delegates decisions regarding the likelihood, severity, and appropriate response to such impacts to the TRP that will be responsible for implementing the Management, Monitoring and Mitigation Plan. This deferral and delegation by the Agency violates CEQA and runs counter to the statute's fundamental goal of ensuring informed decisionmaking by agencies before a projects is implemented.

In addition, the Project is likely to cause impacts to water resources in these wilderness areas and park units as discussed above.

7. The DEIR Fails to Adequately Evaluate Potential Impacts to Cultural Resources

CEQA provides that a project that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment. Cal. Pub. Resources Code § 21084.1. CEQA guidelines further provide that the lead agency shall determine if an archaeological site is a unique archaeological resource, and if so, the lead agency shall identify potentially feasible measures to mitigate significant adverse changes to the resource. CEQA Guidelines § 15064.5 (b) (4).

To begin with, the scope of the cultural resources survey in the DEIR is woefully inadequate. A cultural resources survey within the entire project area, including the wellfield, in anticipation of the project must be conducted before a decision is made.

The present DEIR analysis of cultural resources is wholly inadequate and incomplete as to cultural resources and the mandate of CEQA. A full Class I archaeological survey of the project area should be conducted in order that the DEIR analysis consider determinations regarding significant and unique archaeological resources including landscape level resources, adverse effects and mitigation measures. The present DEIR indicates that it is expected that cultural resources will be encountered, but does not make any attempt to discover them, deal with associations and the general cultural landscape of the area, and provides no assessment of what may be out there and what impacts the project will cause and how these may be mitigated. There is no discussion of Area of Potential Effects (APE) for cultural resources. Certainly there will be vehicle access, maintenance workers, etc. using the project area and the surrounding region impacting cultural resources.

In addition to impacts on unknown archaeological sites that are likely to be discovered, there will be significant impacts to cultural resources in terms of cultural setting, view shed, cultural landscape, environmental changes, and sequential effects on culturally important animals, plants and landscapes. In fact, the affected area contains a number of sacred sites that have had tremendous importance to the Chemehuevi and other Native American peoples whose aboriginal lands include some or all of the area that will be affected by the project.

The DEIR fails to even consider several important cultural resources and cultural landscapes within the project and in the vicinity of the project. The Cadiz project will result in significant adverse effects to the bighorn or mountain sheep and the desert tortoise, animals that

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are considered an important cultural resource by Native Americans. The Chemehuevi, Mojave and Cahuilla as well as other tribes regard the bighorn sheep as a cultural resource.

The Chemehuevi Indians lived along the Colorado River in the vicinity of Chemehuevi Valley and in the Mojave Desert west of the River. Small Chemehuevi bands traveled across the vast distances between the Colorado River and their villages, camps, springs and hunting ranges in the Old Woman, Granite, Ship, Turtle, Maria, Paiute and Providence mountains. Madrigal, at 39 (2008). The Cahuilla inhabited a vast area of the desert and mountains to the west and south of the Chemehuevi. Bean, at 24 (1972). The Chemehuevi had an intimate knowledge of the desert and mountains including the area in the vicinity of the proposed project. Their Salt Songs celebrate the people's spiritual connection to important cultural places in the area. The songs are sung all night and recount a journey of three sisters from the Bill Williams fork up the Colorado River, north to Las Vegas, then south passing just west of the Old Woman Mountains, then running west to Twenty-nine Palms and south to the Colorado near Blythe. Madrigal, at 40 (2008).

The Chemehuevi and Cahuilla also maintain an important connection to mountain sheep and their ranges. The bighorn sheep was important in their life way as a big game animal that was hunted. The bighorn sheep was also important in Native belief and ritual. The Chemehuevi mountain sheep songs demonstrated an intimate knowledge of the landscape, plants and animals as they described specific places and Chemehuevi hunting preserves and ownership boundaries, which Chemehuevi said often included the land stretching from the top of a mountain range, through the intervening valley to the top of the next. The song would traverse the rocky slopes of a mountain and run down to the desert floor describing palo verde, mesquite, cactus and creosote stands. Laird, at 12, 21 (1976).

The Chemehuevi shamans employed the mountain sheep (*nagatutuguvi*) as one of their principle familiars, a spirit animal who was their spiritual helper and who they summoned from the mountains when practicing a healing ritual. As the shaman performed his healing ceremony, and as he sang and danced, his shaman song traced the route by which his familiar was traveling from its mysterious home in the mountains. Laird, at 32 (1976). The Cahuilla also sang mountain sheep songs and recognized a sacred role of the bighorn sheep in their life way. *Pemtexweva*, the Cahuilla animal master of hoofed animals, was the being given thanks when mountain sheep, or deer were obtained. Bean, at 57 (1972). For Native Americans the importance of the desert tortoise goes beyond protection of an endangered species. The Chemehuevi sang a series of traveling songs which told of the indispensable role of the Desert Tortoise in the desert and identified areas where the tortoise was to be found. Klasky, at 45 (1996). The Mojave Indians considered the desert tortoise a sacred teacher, who was once a Mojave and served to educate the people how to survive in the desert. Klasky at 45 (1996).

Also the following observations regarding cultural setting and background are made: The information on where and when the Chemehuevi were in certain places, is incomplete. The 1605 documents regarding where various groups were located at the time are important; however, the Colorado River groups constantly moved about and changed alliances.

Additionally, there are a number of errors and omissions in the introductory sections of Part 4.5. of the DEIR.

- A. The DEIR does not distinguish between a permanent/semi-permanent village site and a repeatedly used seasonal campsite (4.5-1); "temporary campsite" infers minimal occupation. 36
- B. There is no listing of Bighorn Sheep in the faunal list; this is and was an important animal in the region (4.5-3). 37
- C. In the discussion of the chronological periods and artifact complexes, there is no discussion of the fact that Lake Mojave assemblages are characterized by one type of stone used as weapons and another type of stone used as other tools – this is an important characteristic of this Early Complex (4.5-4). 38
- D. Footnotes # 27 and #29 (4.5-8) are in error in reference to Oñate's meeting Mohave on the Colorado River in 1605 – the reference should read Kroeber 1925:802. 39
- E. Faunal list names "pronghorn sheep" – pronghorn are a type of antelope (4.5-8) 40
- F. There is a failure to mention that the Chemehuevi at the Oasis of Mara shared the Oasis with Serrano (4.5-8) and that the Chemehuevi 160-acre reservation was at Twenty nine Palms. 41
- G. In general, only one or two information sources are used and there is an apparent lack of understanding, in some instances, of what Sutton et al. 2009 said when citations are used. 42

8. The DEIR Fails to Adequately Address Potential Impacts to Water Quality

a. Required Report Concerning Waste Discharges to Groundwater Under California's Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, CA Water Code §§ 13020-13983, requires any person discharging or proposing to discharge waste that could affect either surface or ground water quality to file a report with the appropriate Regional Water Quality Control Board. *Id.* §§ 13260, 13050(e). The Act defines waste as "sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal." CA Water Code § 13050(d). 43

Because Colorado River Water contains substances that would be considered waste under the Porter-Cologne Act, SMWD/Cadiz should be required to file a report with the Regional

Board. The Cadiz Project will increase the TDS in the native groundwater in two ways. First, the infiltration of Colorado River water will dissolve salts in the upper parts of the unsaturated zone and transport them to the indigenous groundwater. Second, Colorado River water contains much higher TDS concentrations than native groundwater and is expected to contribute many tons of TDS over the life of the Project. Finally, the Project would introduce perchlorate, found in Colorado River water, to the indigenous groundwater. Because the project will result in discharge of these wastes to groundwater of the state, SMWD must file a report with the Regional Board.

There is no evidence in the DEIR that SMWD has filed or intends to file this report. The section of the DEIR that discusses permits and/or approvals does not mention this requirement and is therefore incomplete.

b. The Project Will Lead to Impermissible Degradation of the Quality of Native Groundwater Under the Porter-Cologne Act.

The Porter-Cologne Water Quality Control Act, CA Water Code §§ 13020-13983, establishes a coordinated statewide program of water quality control overseen by the State Water Resources Control Board and administered by nine regional boards. The Cadiz basin falls within Region 7—the Colorado River Basin. The Colorado River Basin Regional Water Quality Control Board has adopted a Water Quality Control Plan (“Basin Plan”). The proposed discharges of Colorado River water into the Cadiz basin violates this Plan and the policy of the State Water Resources Control Board.

The State Water Quality Control Board has adopted a policy, which has been incorporated in the Basin Plan, to protect waters that are of a better quality than required by existing policies. The resolution states:

1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.
2. Any activity which produces or may produce a waste or increased volume of concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

State Water Resources Control Board, Resolution No. 68-16 (1968). In addition, the Basin Plan states that “[i]deally, the Regional Board’s goal is to maintain the existing water quality of all nondegraded ground water basins.” Basin Plan, at 3-9.

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Thus, the State and Regional Boards have an obligation to protect high quality waters. It is clear that the native groundwater is of a higher quality with respect to TDS and perchlorate than the Colorado River water. Therefore, the Regional Board cannot allow the Project to cause degradation of the native groundwater source with respect to these wastes. In addition, the Regional Board should impose waste discharge requirements that result in the best practical treatment or control. The DEIR does not adequately address this requirement of California law.

9. The DEIR Fails to Adequately Consider the Fact That the Indigenous Groundwater Contains Chromium 6 at Levels That May Cause Public Health Impacts and Require Treatment

The presence of chromium 6 in the indigenous groundwater at concentrations that could cause health impacts and require expensive treatment of groundwater before it can be used by Project Participants was not addressed in the DEIR. Nor has there been consideration of the additional costs for water treatment that is likely to become necessary within a few years, or who will bear those costs. The DEIR’s failure to consider the presence of chromium 6 and associated water treatment costs renders the impacts analysis fatally deficient under CEQA.

G. The DEIR Fails to Adequately Consider Cumulative Impacts

CEQA requires that an EIR include an assessment of the cumulative impacts of a project with respect to past, present, and probable future projects within the region. Cumulative impacts are defined as “two or more individual effects which, when considered together, are considerable or . . . compound or increase other environmental impacts. CEQA Guidelines, § 15355. Such an analysis is necessary because “[t]he full environmental impact of a proposed . . . action cannot be gauged in a vacuum.” *Whitman v. Board of Supervisors*, 88 Cal. App. 3d 397, 408 (2d Dist. 1979).

In this instance, the Agency has failed completely to undertake a meaningful cumulative effects analysis because they have made no attempt to quantify the level of ground water used or needed to fulfill the purposes of the reservation on the wilderness areas in the Project vicinity.

In addition, the cumulative impacts discussion in the DEIR lacks meaningful detail regarding other reasonably foreseeable water uses on private land. The DEIR also fails to recognize or address the existence of significant paramount water rights in Chambless and the existing plans of the owner of Chambless Station to use those rights both to establish a local water company and residential complex.

1. The DEIR Fails to Consider Climate Change

The Native American Land Conservancy (NALC) has been involved for over a year with the Desert Landscape Conservation Cooperative (the DLCC). This multi-agency cooperative is working to identify and assess the impacts of climate change in large portions of the American West, including the proposed project area. The Native American Land Conservancy is on the Steering Committee as well as the Science Working Group of the DLCC and has access to state-of-the-art research and projections relative to climate change. It is therefore with some concern that we find the current project fails to take into careful consideration the projected impacts of

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climate change that will affect the operation, sustainability, and biological impacts of the proposed project. We believe project-area climate change modeling must be considered in view of the most current scientific findings relative to the project area. Climate change in the western U.S. will have its greatest effect on ecosystems via changing precipitation regimes, although increased heat waves could impact wildlife species. Current models predict more pronounced droughts with predicted decreases in winter precipitation, and greater variability of precipitation inputs in the future for this region. Because freshwater resources are of particular risk, it is important to take additional steps to protect surface and sub-surface water quality and quantity. Results from large watersheds show recent changes in snowmelt and runoff to earlier in the season, thus exacerbating summer drought conditions that will also impact aquifer recharge. This can also effect plant productivity and also strongly influence the structure and function of riparian systems, adding to the threat of desertification. Community and ecosystem trajectories are highly dependent on the pattern of future rainfall regimes – warmer/drier conditions will result in more desertification and may cause structural shifts in ecosystems.

H. The Public Participation Process for Comment on the DEIR Is Inadequate

The Public Participation Process for comment on the DEIR was inadequate to provide for meaningful public participation. The Cadiz Water Project presents complex and highly controversial issues of great public import. To provide the public with a reasonable opportunity to address these issues, the SMWD should have provided the public with the opportunity to participate via public meetings in locations easily accessible to the affected and interested public.

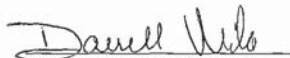
III. CONCLUSION

As stated above, the DEIR is lacking the kind of detailed description and analysis required under CEQA. The Agency must recognize the clear weight of expert opinion in the technical literature demonstrating that the extraction of native groundwater under the proposed Cadiz Project will exceed the natural rate of recharge and have significant impacts on the groundwater system underlying the Project and its vicinity.

The Agency must acknowledge, discuss, and analyze these potential impacts, including cumulative impacts in its Final EIR. In addition, the Agency must comply with the requirements of the Endangered Species Act and the Porter Cologne Act before proceeding with any action.

Dated: March 15, 2012

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Attachments

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