My name is Thomas E. Levy. I am general manager and chief engineer for the Coachella Valley Water District (CVWD). I have been asked by our board president, John W. "Jack" McFadden, to represent the district with respect to the United States House of Representatives, Committee on Resources, Subcommittee on Water and Power's oversight hearing on *Implementation of the California Plan for the Colorado River — Opportunities and Challenges*.

California is required by the California Limitation Act, the Boulder Canyon Project Act and a ruling by the United States Supreme Court (Ariz. v. Ca.) not to use more than 4.4 million acre-feet per year of Colorado River water unless a surplus or unused apportionments from Arizona or Nevada are available.

Other than the special surplus allowed for by the Interim Surplus Guidelines, the Secretary of the Interior does not have the ability or the authority to allow California to take more than 4.4 million acre-feet per year from the Colorado River in normal years.

The Department of the Interior and the water agencies associated with Colorado River water usage are enjoined by the Supreme Court from taking more than 4.4 million acre-feet in normal years.

Despite the exhaustive, good-faith efforts of many at the local, state and federal level, California's mandated attempt to reduce significantly its dependency upon the Colorado River for water through the California 4.4 Plan, the Quantification Settlement Agreement (QSA) and other accords has developed into an intense drama, filled with accusations, threats, insults and innuendoes.

As is the case with many good stories, facts often are ignored by some of the "players" when they interfere with whatever elicits emotional responses from the audience.

Much of the spotlight during this drama has focused on the Salton Sea. So much so that the indisputable reality that we are in the midst of a water crisis that—if left unresolved—will adversely affect the lives of tens of millions of people for decades to come has been forced into the shadows.

My purpose here is not to make light of the Salton Sea's dilemma or to minimize its problems, but to redirect everyone's attention toward the bigger issue facing all of us—how is California going to reduce its annual use of Colorado River water by 700,000 to 800,000 acre-feet a year?

This is not optional. The six other basin states that share in the use of the Colorado River graciously have given California up to 15 years to reduce its annual water usage to no more than 4.4 million acre-feet, but the clock is ticking and if significant, measurable milestones—including execution of the QSA—are not reached in a timely fashion we will not have 15 years to cut back—we will have just a little more than six months before the Secretary of the Interior makes the reductions for us.

Consider that 800,000 acre-feet is enough liquid to cover 1,250 square miles with a foot of water; or enough water in the urban areas served by Metropolitan Water District (MWD) to meet the annual needs of 1.6 million families in and around their homes.

To date the transfer of water from agricultural purposes such as crop irrigation to urban use is the only viable solution offered for reducing California's dependency upon the Colorado River. When all aspects of the QSA are in place nearly half—393,700 acre-feet—of the reduction requirements will have been met by transferring newly available water from agricultural to domestic use.

This obviously can only be accomplished by reducing through conservation or other means the amount of water used for irrigation. This is where the drama becomes intense because the Salton Sea's most ardent supporters argue such conservation threatens this large lake because it is fed by agricultural runoff from Imperial County and, to lesser extents, Mexico and the Coachella Valley.

Important to consider is that inflows into the Salton Sea already are going down and will continue to decrease, regardless of whether water transfers associated with the QSA are in place or not.

More than $100 million in funding from MWD has been spent by Imperial Irrigation District on canal lining, reservoirs, spillage recover and other on-farm conservation methods in Imperial Valley, where inflow into the Salton Sea historically has exceeded one million acre-feet per year.

Structural improvements already in place will result in less water being diverted from the Colorado

River to farm the same amount of crops, and less water flowing into the Salton Sea. This program currently saves 110,000 acre-feet per year

Inflow from Mexico, which has averaged more than 225,000 acre-feet per year, is affected significantly by reduced surplus water flowing into that country—the result of a drought affecting the Colorado River and other circumstances such as construction of a wastewater treatment facility in Mexicali.

Water-efficient farming techniques and other factors already make the Coachella Valley a minor contributor—only 80,000 acre-feet per year—to Salton Sea inflows.

All told, a minimum of 80,000 acre-feet and more likely close to 190,000 acre-feet less water will be flowing into the Salton Sea—without factoring in any of the transfers outlined in the QSA. After a significant period of time, perhaps decades, this will lead to an additional 16,000 acres of exposed shoreline and a drop in the lake's level by eight feet—to 235 feet below sea level.

Potential impacts of reduced inflows and a smaller sea are increased particulate matter (PM-10), odors and the far-fetched possibility of Dust Bowl conditions similar to those experienced in Owens Valley.

At present the Salton Sea Air Basin (SSAB) experiences nearly 175,000 tons of PM10 a year that is directly attributed to agriculture through fugitive windblown dust. Total PM10 exceeds 235,000 tons.

Because agriculture is the backbone of their economic well being, few people complain and no major program to solve the problem exists. This is similar to the reality that most residents of the Imperial and Coachella valleys have accepted and learned to live with certain odors that emanate from the Salton Sea now, when condition are just "right" or "wrong."

Those who worry about PM10 with respect to the Salton Sea use an example of 2,500 tons of it released into the air if the shoreline recedes, which represents less than 1.5 percent of what already is being released into Imperial County.

As for the issue of blowing dust, there is no good, solid scientific data to support Dust Bowl contentions. A student in the Coachella Valley, as a school science fair project, performed the only known study using actual Salton Sea soils, and his conclusions were negative.

Thrown into the debate is the argument that the Salton Sea is in far deeper trouble than just reduced elevation. The lake now is saline—45,000 parts per million (ppm) and if this condition is not reversed or stabilized, once salinity reaches 60,000 ppm this body of water will be on its way to becoming a dead sea because the high concentrations of salt will make it impossible for the fish to reproduce. Eventually the fish will die off, forcing several species of birds to look elsewhere for food. Many of these birds have no place else to go, some argue.

While this scenario if accurate certainly warrants concern, it will occur without the water transfers unless man intervenes, and does so at a significant level. This has no direct relationship to the QSA, provided that mitigation associated with impacts of the agreement are provided to ensure that the transfers do not hasten increased salinity.

With transfers and without fallowing the salinity crisis could arrive one to 11 years earlier at the Salton Sea, which is expected to reach 60,000 ppm salinity in seven to 24 years if the status quo is maintained. At present the sea is headed toward super-salinity and environmental catastrophe, with or without the water transfers outlined in the QSA and other accords, without intervention.

Residents of the Salton Sea area and others argue it needs to be saved because it is unique. I would like to share with you information about an area I consider unique—the Coachella Valley.

One of the attributes that makes the Coachella Valley unique is the nature of its economic foundation, which is built upon two vastly different industries—agriculture and recreation. We boast some of the most productive (an average gross value of $8,962 per acre) farmland in the world, and some of the most desirable places in which to enjoy resort-style living, either as a vacationing guest or a part-time or full-time resident.

In addition to sharing responsibility for making the Coachella Valley economically vibrant and alive, the

agriculture and recreation industries have in common reliance upon a constant, dependable supply of water.

Implementation of the QSA is crucial to the Coachella Valley's ability to continue serving these two industries, and to the water district's ability to manage its groundwater supplies.

One important aspect of the QSA is that once all of its elements are in force, it ensures through quantification that Coachella Valley annually will receive entitlement to up to 456,000 acre-feet of Colorado River water.

It is worth noting that the first actual project designed to reduce California's dependency on Colorado River water involves the Coachella Valley Water District, where an estimated 26,000 acre-feet per year—after environmental mitigations are factored in—will be saved through the lining with concrete of the still-earthen portions of the Coachella Canal.

Our farmers use some of the most water-efficient techniques available. The district has 78,530 irrigable acres and of this, 62,116 acres are designated under United States Department of the Interior guidelines as agricultural. Nearly 59 percent of these—36,500 acres—is on drip irrigation, the most efficient form available. Sprinklers irrigate another 11,957 acres, which is a more efficient method for delivering water than through ditches.

Most of our agricultural water comes from the Colorado River, delivered to the Coachella Valley by the Coachella Canal, a branch of the All-American Canal. Farmers in Coachella Valley who have converted to drip irrigation did so because it makes good economic sense, but some have been hesitant to utilize canal water for drip irrigation because of its silt content. As technology improves this is becoming less and less of an issue.

Our *Water Management Plan* calls for the conversion of agricultural well-water use almost entirely to canal water use by the mid-2020s. Eventually an estimated additional 75,000 acre-feet per year will come from the Coachella Canal instead of from local wells for appropriate uses within Improvement District #1.

This means less demand on the Coachella Valley's aquifer, which in recent years has been experiencing significant overdraft—more water is being taken out of the ground than is going back in. This lower valley overdraft was more than 104,000 acre-feet in 1999. Recharging the lower valley aquifer presents unique challenges because of a thick layer of impermeable clay, but the district has implemented pilot programs and is confident the means will be found to replenish groundwater tables.

The QSA enables the Coachella Valley Water District to obtain an additional 155,000 acre-feet per year of Colorado River water, 100,000 acre-feet per year from Imperial Irrigation District and 55,000 acre-feet from other transfers.

Some of this water will be used to offset groundwater pumping. The balance will be available to recharge the lower aquifer with as much as 80,000 acre-feet per year, which will go toward eliminated overdraft.

Overdraft carries with it potentially significant, negative consequences. Water supplies are reduced, water quality is adversely affected and subsidence can occur. In worst-case scenario subsidence causes damage to homes, businesses, roads, water lines and other underground utilities.

Non-agricultural development—resorts and housing developments—in the lower valley has been booming at a pace that rivals our upper valley, so demand for water there is increasing the drain on the aquifer and will continue until adequate water supplies are available for recharging. Additional supplies of Colorado River water as provided for by the QSA appear to be the only viable alternative at reasonable costs.

Agricultural interests are at a minimum in the upper portion of the Coachella Valley, which has developed into a world-renowned resort and recreation destination. Well in excess of a million people visit the Coachella Valley each year, playing golf and tennis at its resorts, dinning in the area's plethora of fine restaurants and shopping in a vast array of shops and boutiques.

Recreation is a major industry in Coachella Valley, employing thousands of people at numerous salary

levels, and putting tens of millions of dollars into the local economy.

Thousands of people—many retired but all ages are represented—specifically move to the Coachella Valley each year to enjoy a lifestyle that centers on recreational activities such as golf and tennis, and entertainment such as fine dining, the arts and live theatre.

This growth, while a tremendous boost to the economy, has been a significant drain on the upper valley's aquifer, which is easier to recharge and already receives significant replenishment through our participation in the State Water Project.

Through an arrangement with the Metropolitan Water District, we exchange "bucket-for-bucket" our entitlement to State Water Project water for MWD water from the Colorado River Aqueduct. This water is used to recharge the upper aquifer at percolation ponds west of Palm Springs, but overdraft still exceeds 32,000 acre-feet per year.

The QSA provides for another agreement between CVWD and the MWD for entitlement to an additional 50,000 acre-feet of State Water Project water for use in the upper valley. Much of this will be used to recharge the upper aquifer, but some also will be used as we continue to encourage golf courses and other large volume water users in the upper valley to convert from well water to other sources for non-potable purposes such as irrigation. These sources include recycled water from our wastewater reclamation facilities and canal water.

Our *Water Management Plan* calls for significant reductions in water use throughout the Coachella Valley—10 percent for domestic use, five percent for existing golf courses and seven percent for agriculture. But the success of our plan will be jeopardized if the QSA is not implemented. Adequate water supplies will not be available at reasonable costs.

Failure of the QSA to be adopted and suspension of the Interim Surplus Guidelines could result in a loss of up to 200,000 acre-feet per year of water for Coachella Valley in some years. Outside sources of water under the 70R Strategy operating plan, if the QSA is not signed, could be drastically reduced, especially when MWD is forced to claim a greater share of its State Water Project entitlement and water purveyors statewide scramble to find adequate supplies. There is no doubt prices will skyrocket, with costs passed on to the consumer. In worst case scenarios, water will not be available at any cost.

The Coachella Valley will have a difficult time surviving a water shortage. This would be devastating to our agricultural industry. Our farmers already are highly efficient in their use of water, so restrictions on them would be difficult since there is little or no room for additional conservation. Such a request also would be extremely unjust since they already have initiated conservation efforts on their own, without government subsidies or special treatment.

Golf courses are perceived as water-wasters and they do use a lot of water, but very efficiently. Those responsible for golf course irrigation already are employing a variety of water conservation techniques. As mentioned, the district is working with existing courses to encourage greater use of recycled and canal water, and we are encouraging local communities to support a valley-wide, uniform landscaping ordinance that will focus on the use of native and other use low water-use vegetation.

For the Coachella Valley's economy to stay healthy the recreation industry must stay healthy, too, and this means ensuring that golf courses and other resort facilities have adequate sources of water. This is an incredibly competitive market with little margin for error. There are resort communities throughout the world that would love to see us falter so they could grab a piece of the recreation pie.

Thousands of people rely on the resort-recreation industry for their livelihood and tens of millions of dollars flow into the local economy because people recognize the Coachella Valley as an ideal location to enjoy life.

I would like to conclude my testimony by reviewing concepts I first introduced during testimony on Wednesday, May 29, in Sacramento before the state Water Resources Control Board.

A frequent argument against fallowing as an effective method for conserving irrigation water in Imperial

County is that taking farmland out of production will have serious, negative economic and social impacts on the affected areas that rely on agriculture for their economic well being.

Thousands of people will lose their jobs, critics of fallowing argue, and the local economy will lose millions and millions of dollars. Those businesses that rely on agriculture—including seed companies and fertilizer makers and farming equipment manufacturers—all will lose revenue as a result of fallowing. Farm workers will be laid off, and the hard-earned dollars they received toiling in the fields will not be spent to buy food, clothing and other goods and services. This creates a chain reaction with people who work in fast food restaurants and markets and theaters and clothing stores and seed companies and farm equipment sales and service businesses all losing their jobs.

Businesses close up, people move away and the entire Imperial Valley resembles Oklahoma's Dust Bowl during the Great Depression.

It's a dismal picture that the critics of fallowing paint, one likely to cause almost anyone to stop and wonder: Is it worth it, taking farmland out of production so that water can be shipped to other parts of the state?

The problem with this doom-and-gloom scenario is that there is no need for it to occur—it's a ghost story really, heavy on the fright, light on the facts—and it won't happen if everyone involved uses a little common sense.

Any discussion of fallowing should focus on taking out of production only land used for low value (gross value per acre), highly mechanized, low labor-intensive, high water-use crops. Almost without exception this means field crops, not garden (vegetables, some fruit) or permanent crops, such as citrus.

It is important to understand that no farmland will be permanently taken out of use by fallowing. Instead, an effective schedule would be created to ensure that fallowing is equitably rotated among eligible farmland. And, land management principles will be utilized to mitigate potential weed and dust problems.

Further, through the fallowing of land the economics of farming will improve through supply and demand. Taking alfalfa out of production will mean a higher market price, benefiting those farmers in Imperial Valley who continue to grow hay. One study estimates an increase of more than $11 a ton.

Suppose those farmers selected to participate in fallowing go about their business as usual with one notable exception—they don't water their crops. We'll focus here specifically on alfalfa hay (all types: flat, row and seed) farmers, who in the year 2000 were responsible for 196,077 acres. That's 47 percent of all field crops in Imperial County, 37 percent of Imperial County's 537,076 acres of crops that year.

To free up enough water to enable the Imperial Irrigation District (IID) to transfer 200,000 acre-feet per year to the San Diego County Water Authority (SDCWA), and an additional 100,000 acre-feet per year to the Coachella Valley Water District (CVWD)—and to do so without having a negative impact on the Salton Sea—an estimated 82,000 acres of hay acreage needs to be fallowed.

Eighty-two thousand acres seems like a lot, but it represents only a little more than 15 percent of Imperial County's agricultural acreage in 2000—hardly a Dust Bowl scenario, but let's get back to our alfalfa farmers.

Suppose our fallowing phantom farmers do everything they did when they actually grew alfalfa with that one important exception—they use no water.

Each farmer prepares his soil just as he did before; purchases the seed and insecticides and fertilizers needed as in years past; hires the appropriate number of employees to plant, irrigate, tend to and harvest the crops; perhaps operating tractors and other machinery as if he was growing hay; even factors in costs associated with equipment repairs, replacement and other capital improvements.

If every year the farmer spends 'X' amount of dollars having his equipment repaired, he goes ahead and pays the appropriate vendors whatever he would have spent for this service; buying new equipment as needed, too.

In the end agriculture's bottom line stays the same, in fact farmers are a little ahead of the game because

they are going to get a bonus for participating—more about that later. Since everyone involved in the production of alfalfa is getting paid what they would have received there is no negative impact on the local economy! The vendors continue to get paid, and in turn do business with their wholesalers and other suppliers. The workers get paid, so continue to pay their mortgages or rent and buy food and clothing and automobiles and appliances and other goods and services.

So the fast food worker doesn't lose her job and the cashier at the market doesn't lose her job and the tractor salesman and the automobile repair guy keep their jobs and life pretty much goes on as it did before fallowing.

How is this possible?

In simple terms: money. Lots of money.

The purchase of conserved water from IID is going to create vast resources of revenue. Water has become a very valuable commodity. The same water that a farmer is charged about $15.50 an acre-foot is worth more than $250 an acre-foot to thirsty urban customers is San Diego County. The average cost that SDCWA and CVWD will pay IID for water is $231 per acre-foot.

When you factor in the amount of water used per acre of crop, per year, for alfalfa, we discover that with respect to water each acre will be worth $845.46 to IID from the water purveyors receiving the transfer. Here's how that works.

An acre of land within IID boundaries requires 5.63 acre-feet of water per year. Of this, 35 percent is field run-off, so 1.97 acre-feet per years ends up in the Salton Sea. Assume for the sake of argument that this nearly two acre-feet of water per acre is allowed to continue to reach the Salton Sea through some means.

Since the Salton Sea continues to receive the same amount of water as it did before, fallowing has no negative impact on this body of water.

Which leaves 3.66 acre-feet of water allocated to the farmer, which SDCWA and CVWD are willing to pay an average of $231 per acre-foot to receive. So these water agencies are, in effect, paying IID $845.46 for every acre that is fallowed.

From this amount the farmer receives the same gross revenue per acre he would have received had he grown alfalfa—$665. For 82,000 acres this represents $54,530,000, and again, this is more than $54.5 million that stays in the local economy, and is equal to what the farmer has received in the past—worry free. Fallowing farmers need not worry about crop failure or pestilence or any of the dozens of other things that can go wrong with a crop.

From the original $845.46 this leaves $180.46 per acre. IID receives a management fee of 5%, $42.27 per acre, which at $3,466,386 more than offsets the expenses of administering the fallowing program—enough money to hire 50 people as full-time employees.

IID also receives a little less than $5 ($4.76) per acre to offset lost revenues from power generation since transferred water will not be flowing through the agency's generators along the All American Canal.

And, Imperial County receives about $4 per acre under the Williamson Act, reflecting potential lost payments for prime versus nonprime agricultural land.

So far the local economy has lost no revenue, IID has lost no revenue and the county has lost no revenue. If anything, more money is flowing into the local economy.

And we still have $129.43 per acre left over, which represents a healthy bonus that can be paid to the farmer for fallowing his land, or to pay any costs not already outlined above.

When multiplied by 82,000 acres, this bonus represents $10,613,260, which is a potentially significant boost to the local economy; in fact, in revenue generated by agricultural acreage this is 13 percent more than what was being brought in from alfalfa growing alone.

Now, we are not actually suggesting that farmers go out and grow crops without water. What we are suggesting is that the transfer of water from IID to SDCWA and CVWD generates more than enough money

to ensure that the negative socioeconomic impacts predicted by the naysayers will not occur.

The transfer of 300,000 acre-feet per year from IID to SDCWA and CVWD will generate more than $69 million.

If 82,000 acres are fallowed, and farmers are compensated as outlined above, there will be more money poured into the local economy, not less, and with a little imagination Imperial County actually can be turned into a better place to live.

Suppose you pay those farm workers the same wages but instead of having them participate in phantom farming, you assign them to badly-need public works projects that will improve the areas where they live and work; or establish training programs that offer these men and women the skills necessary to obtain and keep better paying jobs, leading to better social and economic conditions for everyone.

In the process the Salton Sea continues to receive the same inflow it would have gotten without fallowing. This eliminates it as an obstacle to successful completion of current efforts to reduce California's dependency on Colorado River water.

With 82,000 acres fallowed, 300,000 acre-feet of conserved water is transferred to SDCWA/CVWD, this leaves 161,660 acre-feet, less various losses, for the Salton Sea, the same amount that it receives in agricultural runoff from the land proposed for fallowing.

On-farm conservation methods reduce the amount of runoff into the Salton Sea by the amount of water conserved. So if these methods are used to free up 300,000 acre-feet for transfer, that is 300,000 acre-feet that is not going to go to the Salton Sea.

If we do not find our own solutions, including fallowing, there is the potential that sufficient water will not be available to irrigate the crops in Imperial County and elsewhere. Then you have no choice but to conserve, and to do so without fiscal compensation. Then there will be tremendously negative social and economic impacts.

We've used alfalfa as our example here, but if the list of eligible field crops is expanded to feature others—with a gross value of less than $665 per acre, excluding pasture but including Bermuda Grass, cotton seed, Sudan Grass and wheat—only 23 percent of these lands need to participate to generate the water required for the transfers.

This leaves garden and permanent crops totally unaffected by fallowing, which is tremendously important because these crops are much more labor-intensive, especially during and after harvesting.

Phantom farming can keep Imperial County from becoming the "Ghost County" that fallowing critics claim it will become if acreage is taken out of use.