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The Eternal Dustbowl

Paying for the sins of L.A.s water barons has created a half-billion-dollar boondoggle

By [Jeffrey Anderson](#) Wednesday, Mar 22 2006

Beyond the arid vacancy of the [Mojave Desert](#), U.S. 395 enters the austere majesty of the Owens Valley. To the east are the reddish peaks of the Cosos. The snow-covered [Sierra Nevada](#) rise along the western side. For miles ahead, the view seems endless, except for the Inyo-White range, which curls around the northeast edge of the valley. This is one of the good days, when the air is clear and crisp.

Midway up the valley, near the town of Olancho, lie the remains of Owens Lake. Back in 1904, immigrant water baron [William Mulholland](#) arrived here with [Frederick Eaton](#), the retired L.A. mayor and water hound. They had ambitions to solve a drought and expand the city into the [San Fernando Valley](#). In seizing their prize they could not have pictured the destruction they would cause by diverting water to Los Angeles.

Today, what once was a 100-square-mile body of water is mostly a massive blob of white alkali. Locals breathe its metallic dust; they can taste it. On a bad day, the dust rises off the lake's skeleton in vicious, tornado-like plumes, forcing [children](#) and the elderly to stay indoors. It is the largest source of coarse-particle air pollution in the country — second in the world only to the [Sahara Desert](#).

Holding L.A. responsible for this mess has become an obsession in these parts. One day last November, [Mike Patterson](#), a local businessman and self-taught jack-of-all-trades, offered a tour of the scarred region, along with [Don Odell](#), a semiretired lawyer and former member of the [Inyo County](#) grand jury. Odell and Patterson know the local history as well as they know the odor of Owens Lake dust. They make an odd pair: Patterson is tall, ruddy and wears a Stetson; Odell is elderly and uses a cane.

Patterson helps Odell into his truck and drives south from Odell's ranch in Lone Pine toward Cerro Gordo, a preserved ghost town in the mountains east of Owens Lake that Patterson owns. On the way up, the two swap tales about the history of the Cerro Gordo mines and a dried-up boomtown called [Swansea](#), also owned by Patterson. Lead, copper, silver and gold once came by steamer from Swansea across Owens Lake en route to Los Angeles. Cerro Gordo lode built Los Angeles as much as Owens Valley water did, Patterson says.

The canyon is steep, and the half-hour drive bumpy. Cerro Gordo Road cuts through 400 million years of exposed strata topped with creosote, cactus, greasewood, piñon pine and [Joshua trees](#). Near the top of the mountain, Cerro Gordo comes into view. Farther beyond Cerro Gordo, 8,500 feet above sea level, is an [L.A. Department of Water and Power](#)–owned telemetry tower. “My Uncle Cecil let ’em build that thing,” Patterson says, climbing out of the truck to take a leak. “I think he said yes for a six-pack.”

The view started off well enough but now reveals the tragedy of the valley — and the questionable half-billion-dollar [project](#) undertaken by L.A.’s DWP to thwart the toxic dust storms. As the sun sinks behind a [Sierra](#) ridge to the west, colors of orange, red and blue-gold with streaks of magenta appear on the horizon. The lakebed below is cast in a disturbing light. To control dust, the DWP has created more than 20 square miles of shallow flood zones and grown a little salt grass. The fading sun’s silvery reflections on the puddles of water are broken up by the machinery of an irrigation system: 55 pump stations, 83 miles of elevated roads and berms and 6,666 irrigation bubblers. Buried somewhere in the middle of 10,000 feet of corrosive sediment that rests on a high water table are 39 miles of large pipeline, 202 miles of medium pipeline, 146 miles of buried drain line and 3,624 miles of buried drip tubing.

From this towering vantage point, Patterson notes the lakebed is shaped like a giant trapezoid. “Or a bighorn sheep without legs .??. or a giant bladder. Some say it’s the same dimensions as the [Sea of Galilee](#). Does that make this the [Golan Heights](#)?”

Looking down at the starved lake, he says, “If you had an environmental heart, it’d almost make you cry.”

Death to the lake came shortly after an 11-year span, from 1913 to 1924, with the opening of the Mulholland-designed Los Angeles Aqueduct, fed by a dirt channel cut into the [Owens River](#) near the town of Independence. Some 62 miles of river drained into what has become a major source of tap water, delivered by the DWP.

No one knew it would turn out this way, or how far-fetched it would seem eight decades later to fix the lake. Odell muses about his days arguing over a solution down in L.A. City Hall and a conversation he once overheard between [Mayor Tom Bradley](#) and an LAPD detective who investigated the Black Dahlia murder named [Ralph Asdel](#). “I’m standing there one day and the mayor is talking to Asdel about Owens Valley and he says, ‘Ralph, someday we’re gonna have to fill that lake.’?”

That day will likely never come. But just as impossible as filling the lake is reversing the damage. Initially billed as a feat of modern engineering, the Owens Lake Dust Mitigation Project is the product of a decades-long legal struggle by the Great Basin Unified Air Pollution Control District to bring the DWP to justice. What started as a simple David vs. Goliath story has grown more complex: Out-of-control costs, alleged waste and mismanagement, and demands for answers about what went wrong now mar the project. A handful of scientists and Owens Valley crusaders are wondering if headstrong locals out to teach L.A.’s water thieves a lesson pushed aside simpler strategies that would have worked. Odell and Patterson believe local air-quality regulators could soon regret lobbying for the shallow flooding of the lake: Not only is it wasting

enough water for a city of 300,000 people a year, but it creates the breeding ground for mosquitoes and the risk of an outbreak of West Nile virus. Residents of nearby Keeler are choking on horseflies, deerflies and tiny biting insects called no-see-ums.

Intense scrutiny now embroils the massive public works project, with the DWP's newly appointed board of commissioners embarking on a half-million-dollar audit of its chief contractor, Denver-based [CH2M Hill](#). A confidential City Council report warns of a water-rate increase between 3 percent and 4 percent for the next three years, in part to cover the tab.

Patterson and Odell knew this day of reckoning for the DWP would come. Says Odell: "These jokers have proceeded in an irresponsible way."

The 15th-floor boardroom at DWP headquarters is packed as project manager [Richard Harasick](#) stands before the board of commissioners, one hand stuffed in his pants pocket and hip cocked to the side. For the second time in a month, he faces a grilling about costs and charges of mismanagement and improper billing on the Owens Lake Dust Mitigation Project.

Looking out from a high-backed leather chair is [Commissioner Nick Patsaouras](#), a sharp-tongued veteran developer and a former board member of the MTA, where he carried enough clout that a downtown travel plaza bears his name. "We're spending 3 to 4 million dollars per month on this contract?" Patsaouras says with a thick Greek accent.

Harasick's face is red. "You're interpreting it wrong," he says. "Tell me how I'm wrong," Patsaouras insists, not waiting for an answer but plunging into a breakdown of costs on the half-billion-dollar project now under the microscope as the city faces budget problems. "It is what it is," Harasick says. "It's a standard contract. If you want to change it, go ahead."

The DWP took responsibility for Owens Lake's rehabilitation in 1998 and started work there in 2000. Despite a tripling of costs from early estimates, and a 2004 written warning about rising costs from the city administrative officer to then-mayor [Jim Hahn](#), the project remained on cruise control and above scrutiny. Subcontractors were lining up for a piece of the action. The Lee Andrews Group, a public-relations firm accused by City Controller Laura Chick of overbilling the city in connection with the Fleishman-Hillard scandal, received contracts totaling more than \$835,000. Even local businesses like Dave's Auto in Lone Pine have done all right, what with the steady need for parts and repairs on DWP vehicles.

All was quiet up at Owens Lake and might have stayed that way until last October, when *L.A. Weekly* exposed DWP employees' claims of faulty designs, rampant change orders and abuse of public funds on the project overseen by CH2M Hill. (The firm is an acronym made from the last names of its founders — Cornell, Howland, Hayes, Merryfield — and Hill, a company they merged with.)

With the project expected to cost \$415 million, the DWP's maintenance costs modestly estimated at \$40 million a year thereafter and \$25 million in change orders approved thus far, the City Council and DWP commissioners called for an audit.

Patsaouras, whose friend, [Mayor Antonio Villaraigosa](#) was briefed during his campaign a year ago on the alarming costs at Owens Lake, was the first to jump on CH2M Hill and call for new bids. He soon uncovered engineering and technical “soft costs” that put the project, when completed, nearer to \$475 million. To date, the DWP has spent \$304 million. CH2M Hill will receive \$106 million.

“Who hires subcontractors?” Patsaouras asks. “Hill does,” Harasick replies. “Someone sits on a throne and moves subcontractors in and out like the flavor of the day?” Patsaouras shoots back. “I don’t want to be part of a false, unprofessional, incompetent process. I want a new bid for the rest of the project. Hill can compete, but by our rules.” When the grilling is over, Harasick turns and walks out, looking straight ahead.

Harasick has reason to be frustrated. He is not responsible for the deal that launched the dust-mitigation project. A potential scapegoat, he is responsible for fixing a problem that scientists have puzzled over for 30 years. There are signs of progress — costly, debatable ones. Patsaouras knows the tricks of public-works contracts but has not studied the intricacies of the dust problem with the same vigor he applies to lambasting DWP managers. Cynics in City Hall have questioned his motives. Some say he is making a power play to establish himself as Villaraigosa’s pit bull of fiscal reform, or that he may have friends looking to take CH2M Hill’s place.

But the DWP has a history of mulishness and Harasick, a 20-year veteran recruited out of college, is a product of his surroundings. Practically invisible is his boss, [Tom Erb](#), leaving Harasick to resort to rationalizations and finger-pointing. “There is no example, nor does any information exist, on how to control [Owens Lake’s] one-of-a-kind dust-emitting surface,” Harasick wrote to the City Council last October. On December 6, he wrote to [Jim McDaniel](#), chief operating officer of the water system, “What was not really contemplated was the operation’s organization and costs. What you are seeing is just a general lack of full support of the project by our own staff.” McDaniel then wrote to general manager [Ron Deaton](#), “Equipment, material, final layout and the overall quality were not under the direct control of the DWP and were not up to its standards.” Deaton went to the commissioners and said, “We didn’t know what we were getting into.”

Court records, scientific reports and documents obtained by *L.A. Weekly*, however, show that the DWP ignored 20 years’ worth of evidence that questions the environmental and financial basis of the high-tech, water-intensive approach to dust control. Interviews with air-quality regulators, DWP employees and consultants familiar with the project reveal that the DWP and CH2M Hill were advised of specific conditions on the lake that would lead to excessive costs and duplicate efforts. Ignoring such advice led to tens of millions of dollars in change orders and a questionable reconstruction of a completed first phase.

Now the DWP is spending \$500,000 on a “forensic” audit of CH2M Hill — implying the potential for legal action. Auditors will be looking at the DWP as well. The project is back out to bid. CH2M Hill, the city’s primary consultant from the start, is prohibited from rebidding as construction manager, but will remain in charge until new bids are evaluated. Observers say the project could result in years if not decades of maintenance with no end in sight. Turning back is

not an option. Along the way, CH2M Hill and the DWP have tried to airbrush their failure to identify an affordable goal that doesn't involve pipes and construction — and higher water rates. CH2M Hill spokesman [John Corsi](#) says the company should not be singled out and is qualified to complete the project. “The new DWP board has some questions, and we understand that. .??. We are a key member among many companies that have participated.”

Mayor Villaraigosa has kept his distance from the DWP. Controller Laura Chick, who privately briefed Villaraigosa and other mayoral candidates last spring about the ballooning costs, has taken no action, despite being personally contacted by DWP employees acting as whistleblowers and approached by at least one DWP commissioner for support.

The City Council also knew about the alarming costs but only now is asking questions. Patsouras, himself a quick study in damage control, scoffs at the sudden interest. “Low-lying fruit,” he says. A staffer for a council member who has served on the Commerce, Energy and [Natural Resource Committee](#), which until recently oversaw the DWP, was asked last summer about troubling signs on the lake. The staffer shrugged and said, “It’s tough to grow grass in the desert.” [Councilman Tony Cardenas](#), at his last meeting as committee chair on January 25, downplayed CH2M Hill’s role. Asked if the project has won any awards, he blamed former DWP officials for misrepresenting cost estimates and then declared, “I want to get down to the truth.”

The dirty remains of a two-foot snowfall on New Year’s Eve are piled against the headquarters of the Great Basin Unified Air Pollution Control District in Bishop, 80 miles north of Olancho. Housed in an old motel called La Montana Plaza, Great Basin is pumped up by more than \$60 million in regulatory fees paid by the DWP over the last 13 years and wields authority vested in it by the [Environmental Protection Agency](#) and the California Air Resources Board, known as CARB. Great Basin oversees air quality in Alpine, Mono and Inyo counties, a 14,000-square-mile area of about 32,000 people, according to the 2000 Census — less than three people per square mile.

Seated at his desk in a converted motel room is [Ted Schade](#), district director for Great Basin. Schade, 48, with snow-white hair and blue eyes, is an Orange County native and a civil engineer. He was hired in 1990 to manage lakebed research and develop plans under the Clean Air Act, which regulates coarse-particle air pollution known as PM-10. He embraces the local cause célèbre of holding the DWP responsible for almost a century’s worth of water-taking.

On a sunny but cold February day, as recreational vehicles, SUVs with ski racks and trucks carrying Ski-Doos pass through town on the way to winter resorts at [Mammoth Mountain](#), Schade is preoccupied with the prospect of a revived legal battle with the DWP — one that he thought Great Basin had won years ago.

High costs and claims of mismanagement are not his problem, Schade says, estimating that the DWP could spend between \$80 million and \$90 million a year, based on the cost per ton of removing dust from the air. His advice to simplify the project was ignored, he says. In December he demanded that the DWP actually expand its project by nine square miles. The DWP is appealing to CARB. Schade is braced for a fight. He says he has data to prove that dust from the

additional nine miles exceeds federal PM-10 standards. The DWP says Schade's data is "tainted." "The Clean Air Act calls for continuing measures," he says. "I have to enforce the law. DWP has to do what it takes."

Schade talks in rapid sentences when he gets excited. "We didn't tell DWP where to get the water, or how to fix the lake, but we required them to control dust," he says. "We tried everything from sand fences to chemicals to covering the lake with old tires — there was even a proposal to pump treated sewage from Los Angeles. The methods that worked best were shallow flooding, vegetation and gravel. How DWP goes about it is their business. They stalled for years. By the time we reached an agreement they were running out of time according to the law. They had to fix the lake, quick."

Scientists from all over the world had studied the problem since the 1970s. Officials at the nearby China Lake Naval Weapons Station claimed loss of visibility that hampered flight programs when dust storms raged. Former Great Basin director Chuck Fryxell held the DWP's feet to the fire in the early 1980s when he denied the DWP a permit to tap a geothermal electrical generating source at Coso Junction. It's been a struggle ever since, Schade says. "Locals were skeptical the problem could be fixed. DWP denied that water-diversion was the cause."

The dispute led to a state law known as SB 270, sponsored by Los Angeles. According to court records, Los Angeles Assistant City Attorney Kenneth Downey stated that the city wanted Great Basin to "keep its hands off" the aqueduct supply of water; Great Basin wanted funding for research for air-quality problems. SB 270, enacted in 1983, prevented Great Basin from cutting off Los Angeles' water for any reason, but allowed Great Basin to conduct studies, impose dust-control measures and collect fees to reduce the dust. In 1997, the DWP refused to pay a \$1.5 million assessment for vegetation research, prompting a bitter lawsuit. CH2M Hill, in its role as the DWP's expert witness, claimed vegetation would not survive on the lakebed, Schade says.

The hardball tactics left a mark on Schade. "They tried to delay in court and put us out of business." The DWP argued that Great Basin refused to conduct a health study to justify the expense of controlling dust on Owens Lake. A court of appeals eventually sided with Great Basin, but meanwhile, CARB deadlocked on a proposal to end the dust controversy, setting the stage for a showdown. Ron Deaton, then the City Council's chief legislative analyst, sent a delegation to Bishop to negotiate with Great Basin, headed at the time by [Ellen Hardebeck](#). "The negotiations went nowhere," says Schade. "DWP was not committed to fixing the lake."

Then one day in 1998, as Sacramento lawmakers were considering a bill to force the DWP to submit to Great Basin's authority, Schade's phone rang. "It was the new general manager of the DWP," he recalls. "I pick up the phone and hear, 'Hi, my name is [Dave Freeman](#). I understand I got an air-pollution problem that I need to do something about.'?"

A few miles from downtown Bishop in a modest neighborhood near the base of the Sierra, Ellen Hardebeck reaches for the landmark agreement she negotiated in 1998. Hardebeck retired as director of Great Basin in 2004 but stays in contact with Schade. "It'll be hard to undo the whole thing," she says, clutching a copy of the State Implementation Plan, or SIP, made possible by former DWP general manager S. David Freeman, now president of the Harbor Commission and

a close friend of the mayor's. "It's been approved by the state and says if new dust conditions crop up, DWP has to fix it."

Hardebeck was a fervent regulator who personalized Great Basin's struggle to hold the DWP accountable for the disaster at Owens Lake. Some say she got the better of Freeman, who was desperate to settle. Others say she went too far in her demands, which paved the way for CH2M Hill to go from Great Basin's adversary to the DWP's primary consultant working side by side with Great Basin. Schade calls Hardebeck "my hero." Before DWP fees allowed Great Basin to hire more than 20 new employees and buy its own building, Hardebeck, Schade and deputy air pollution control officer [Duane Ono](#) literally had worked out of her garage while fighting the DWP in court and in the Legislature. "It was an exciting time," she says.

In 2003, the plan came up for review. The 2003 SIP gave the DWP until the end of 2006 to fix a total of 30 square miles — meaning cover it with enough water, plants or gravel to reduce PM-10 emissions by 98 percent. To monitor compliance, the DWP purchased a cache of sensitive air-measuring devices for Great Basin to place around the lake. "We negotiated with DWP in good faith. We promised them extraordinary access to air-quality data in exchange for them giving a benefit to us."

Recently, new threats to Great Basin have emerged. The EPA has proposed to exempt rural areas from PM-10 standards. If enacted, the proposal would let the DWP off the hook — though state lawmakers could pass stiffer laws to preserve air standards. Locals are on edge. *The Inyo Register* has quoted DWP board president [Mary Nichols](#) as saying she wants to "take another look" at dust-control methods. Nichols called the project a "mud flat, and a very expensive one at that." She questioned whether the "best science" had been applied. Nichols' comments came after a massive dust storm. Hardebeck took exception to the negative remarks.

"I don't think Nichols understands we've been testing control measures on the lake since the 1970s," she says, the snow-capped Sierra visible through her living-room window. "Shallow flooding so clearly works. It's simple: Pour water on the lake and let it run downhill. You can see it work, and the water doesn't interact with anything except to evaporate. It's easy to deliver. You can grow grass with it. If Nichols wants to find a better way, then fine. But a deal's a deal. The law is the law. DWP can never walk away as a polluter. Besides, how much money did DWP make selling water for 80 years?"

Owens Valley stretches 100 miles from [Mount Whitney](#), the highest point in the continental United States, to the lowest, [Death Valley](#). In spring the snowmelt from the Sierra produces flows that are diverted to the Los Angeles Aqueduct — on average more than 300,000 acre-feet per year. Locals call it "the water factory." Owens Lake dust is the factory's exhaust. That makes the dry lake the smokestack, which requires maintenance, they say.

The lake has intrigued, seduced and vexed scientists. Many have rooted around in dust suits and toiled in scorching heat and wind looking for answers to the toxins that rise to the surface of the lakebed as if there were still water in the lake. More often than not, scientists' recommendations about how to fix the lake have been ignored or rejected.

[Professor Thomas Cahill](#) of UC Davis has been a passionate voice for organic rehabilitation. Known among colleagues as a renaissance man of science, Cahill, director of UC Davis' DELTA Group, which specializes in chemical engineering, is a physicist, atmospheric scientist and a research professor in engineering. He discovered dangerous levels of fine-particle air pollution rising from the smoldering remains of the [World Trade Center](#) after 9/11. He was among the first to study pollution levels of the 1997 Kuwaiti oil fires.

Owens Lake has gotten under Cahill's skin. "Great Basin decided to take a ride on the back of a tiger, the DWP. The problem is that CH2M Hill provided the saddle." Cahill sees inconsistent, perhaps misleading results on air quality around Owens Lake. He points to a slow decrease in dust in recent years that could be attributed to wet winters. "Look at 2003," he says. "There's a spike in pollution. That could be DWP's contractors bringing in all their heavy machinery, wrecking natural sand dunes and stirring up dust."

Cahill took on Owens Lake in the 1990s after helping Great Basin make its case for the need to fix nearby Mono Lake — also drained by the DWP — which after years of litigation is being restored. In 1979, he and the Air Quality Group at UC Davis' [Crocker Nuclear Laboratory](#) documented for CARB that significant amounts of sulfates and toxic airborne particles rise off the saline crust that forms atop the alkaline-laced mud on the bed of Owens Lake.

Using lessons learned from his decade of research at Mono Lake, Cahill proposed studying whether naturally vegetated sand dunes could be developed on Owens Lake, like the ones that arose after the great earthquake at Lone Pine in the 19th century. He believed a series of fences could trap windblown sand and stop it from loosening the sulfates on the crust of the lakebed. Accumulated sand could form dunes to support plant life if irrigated, Cahill argued, which would restore the lake with less water and money.

In 1991, a group of about 20 scientists from UC Davis and the [National Oceanic and Atmospheric Association](#), or NOAA, received funding from the State Lands Commission and CARB and proposed a small-scale mitigation project to last from 1992 to 1993, and a larger project to last from 1994 to 1999. The sand fences worked, Cahill says. Dunes developed and cut down the dust. The group estimated it could achieve 80 percent dust reduction at a cost of \$9.7 million over eight years. In a final report to the State Lands Commission in 1995, the UC Davis group claimed 91 percent dust control and stated that, "sand-fences are a well established, cost efficient and environmentally benign technique that can be applied to large scale mitigation of moving sand and blowing dust."

But Great Basin — and the DWP — preferred to pour water on the lake. Hardebeck had made up her mind that flooding the playa, along with gravel and vegetation, were the most desirable control measures. Most agree that Hardebeck badly wanted to create a habitat for shoreline birds. She and Cahill argued bitterly over strategy. Cahill, in a December 5, 1996, memo to Hardebeck wrote, "[These] alternatives are merely temporary fixes. Since [they] will not result in a stable, ecologically sound end point, support [for them] will involve long term expenditures of cash, water and personnel." Cahill cautioned that once commenced, a water-based mitigation approach "could collapse in startlingly little time" if discontinued.

Cahill calls Hardebeck's demand for 98 percent dust reduction an unreasonable goal that served as an excuse to reject scientific approaches that would not allow Great Basin to profit. "It's an artificial number. Great Basin got cozy with DWP and decided they could get a lot of money for themselves," he says of the annual dust-mitigation assessments that the DWP pays. Cahill took one more shot in 1997 with a proposal to reduce dust by 90 percent on the worst area of the lake, the South Sand Sheet. His projected startup cost was \$1.3 million, with an annual maintenance cost of \$700,000 per year. "DWP cut off funding, Great Basin rejected the proposal and in came the bulldozers."

Cahill's colleagues are less outspoken. Some, like professor [Bruce White](#), a wind-studies specialist from UC Davis, are reluctant to stoke the controversy. Still, White agrees with Cahill on key points: "98 percent dust reduction is too high," he says. "It may be impossible to make a connection between science and the economics of the situation and feel good about it. Projects like this are run by politics, perhaps too much so."

[Dale Gillette](#), a world-renowned physicist at NOAA, has a dilemma. His current research relies on air quality data collected by Great Basin. Owens Lake is one of the great natural laboratories in the world, Gillette says. In 1991, he visited with scientists from the former [Soviet Union](#) and France to study vertical flux of dust in relation to horizontal sand movement. "Owens Lake has been good for me. But the best solution may very well be different than the one [Great Basin] chose. Ellen [Hardebeck] is a decisive person. It was a deal both sides said they could live with."

Some feel that efforts to minimize cost have been ignored. [James Richards](#), a professor of ecology at UC Davis who has done research on Owens Lake since 1992, submitted a proposal to the DWP in 2005 to grow shrubs and maintain them affordably. But of the 30 square miles of the mitigation project, most of the vegetation has been phased out, despite millions spent on an irrigation system and on cultivating salt grass. The reliance on salt grass for the existing 2.5 square miles of vegetation rules out several plants native to the Owens Valley that might grow in the lakebed, Richards says, such as greasewood, Parry's saltbush and bush seepweed. He says his proposal sits idle. Another growing season and a year's worth of information is lost.

When contacted recently, he let out a heavy sigh. "Scientific results don't always come out the way [government] wants." Richards says the DWP and CH2M Hill have been successful to a certain extent growing salt grass. "But a lot of my work is on shrubs, which use less water than salt grass or irrigation." He estimated the DWP is using the equivalent of 31 inches of rain per year on the lake. Owens Valley gets about 5 to 6 inches of actual rain, he says. "There are shrubs in the area that survive on that much rain. Getting them started may be expensive at first, but over time it will save money and water. What's the lifespan of all that equipment buried in the lake, not to mention the maintenance cost?"

Pierre St. Amand, a retired Navy scientist and board member of the [Indian Wells](#) Valley Water District, lives in [Ridgecrest](#) in a large adobe house off Route 178, a couple of miles from the China Lake Naval Weapons Station. His house, which he designed, heats and cools itself without using electricity. St. Amand, goateed and sporting a fleece pullover, settles onto a sofa in his sunken living room on a recent Friday. He moves slowly and uses a hearing aid. As far as St. Amand is concerned, sand motion is not the problem, and flooding the dry lake with water

definitely is not the answer. “Is it too late to try to turn back?” he is asked. “No, they’re just headed in the wrong direction, is all.”

In 1986, St. Amand published a report titled “Dust Storms From Owens and Mono Valleys,” in which he identified causes and effects and offered solutions to the dust problem — of particular concern to the Navy when it tested aircraft and conducted training exercises near the northwest corner of the base, which is not far from Owens Valley. A canceled flight test could cost the Navy up to \$50,000. Sometimes several tests per day were canceled, with dust storms lasting up to two days, according to a 1996 letter to Ellen Hardebeck from [Captain C.A. Stephenson](#).

St. Amand identified 10 possible solutions, including treating the lakebed with chemicals to bind the alkali crust. The best approach, he says, has been overlooked: a series of concentric polders, or ditches, like in [Holland](#), to wash alkali from surface soils via windmill-operated pumps into a sump, where solids could be collected. Cost: \$25 million over 15 years. Or, lower the water table to keep the alkali from being pushed to the surface, where it kills plants and forms a toxic crust.

“Did you send this report to Great Basin?” St. Amand is asked. “Hell yes,” he replies. “The air district never pays much attention to people outside its own community. You are digging into a period of discontent over the taking of Owens River water. The exercise as far as scientists and environmentalists is concerned is different from that of the people of Owens Valley who wanted to stick DWP with the tab. Then, when DWP received my report, they sent a man up to tell a Navy admiral to knock it off with these reports.”

The main problem St. Amand has noticed on the lake is the chemical compounds of most of the substances that cause dust are made up mostly of water. “They take water into their molecular structure, crystallize, and the volume increases out of the clay surface of the lakebed. Putting water on the lake is not like spraying down your driveway or a construction site. The salt crust is like a flower. Water actually makes the crust grow. And it doesn’t take much wind to create dust. .??. They screwed around for donkey’s years up there and never analyzed the water content of the clay over time,” St. Amand marvels, leafing to a chart titled “Reactions Occurring on the Playa Surface as a Function of Temperature and Humidity.” “They started with the finished product.”

One man whose ideas St. Amand admires is Mike Patterson, who proposed windmills to generate power to run a water-management system. Patterson wanted to pump groundwater from under the lake to create a salt-free root zone conducive to vegetation, so he could grow a marketable plant called guayule, which is used to make hypoallergenic latex rubber. Then he would divert brine water to salt ponds and harvest the minerals. St. Amand refers to Patterson as “one brilliant son of a bitch.” St. Amand has his own admirers. Great Basin’s Ted Schade says he is one of them. When asked about St. Amand’s 1986 report, Schade replies, “It’s the first thing I read on the first day on the job. We’ve always found that simple is better. But in come CH2M Hill and DWP with rocks and berms and heavy pipe and drip tubing. I’m not convinced by their high-tech solution. We wouldn’t mind seeing some new faces around here.”

A consequence of standing water or irrigated vegetation is the development of a mosquito-breeding habitat. A 1995 final report to Great Basin by Bruce Eldridge and [Kenneth Lorenzen](#)

from the [Department of Entomology](#) at UC Davis is titled “Predicting Mosquito Breeding in a Restored Owens Lake.” [Eldridge](#) and Lorenzen studied Owens Lake from 1993 to 1995, according to their report, when the DWP cut off funding — but not before they warned that shallow flooding would produce larvae of *Culex tarsalis*, the mosquito now known to carry West Nile virus. Last September the DWP filed a declaration of no environmental impact — prepared by CH2M Hill — with the Inyo County clerk. In response to comments submitted by Patterson, the DWP offered to notify property owners of their “eligibility to receive window and door screens or other insect control devices of comparable value.”

In a January 17, 2006, letter to Don Odell, Department of Health Services mosquito-control specialist [Tim Howard](#) wrote: “A case can be made that any shallow lakebed with an abundance of emergent vegetation is a very likely place to produce mosquitoes, including *Culex tarsalis*, and increase human risk of West Nile virus. The flooding will increase not only the potential risk of West Nile virus. Human annoyance and risk of other mosquito vectored diseases will also increase.”

Last October, the Owens Valley Mosquito Abatement Program, an Inyo County agency that is reimbursed for its studies by the DWP under the agreement with Great Basin, found evidence of *Culex tarsalis* on the lake for the first time. The DWP is spending \$300,000 over five years for mosquito abatement, but Odell believes almost all of it goes to research and preparing the annual report. Vector-control specialist [Jerry Oser](#) says, “There’s several springs near the shoreline that produce lots of mosquitoes. What I’m seeing, wherever salt grass is growing on the lake, it shows mosquitoes a reason to go out there. There’s a lot of water out there. There’s also a lot of equipment — huge water mains with little offshoots. Who knows what it’ll look like when they’re done. It’s mind-boggling.”

DWP officials past and present blame others for the cost of the project. And despite 14 dust storms since January, according to Schade, the DWP, CH2M Hill and Great Basin defend the progress on the lake. The EPA, which defers to Great Basin as the regional air quality regulator, says only that when specified areas are covered the PM-10 standard is met for those areas. Yet no one can claim that 98 percent dust reduction is or ever will be attained.

Meanwhile, CH2M Hill is trying to rehabilitate its image. On January 13, in response to news reports regarding criticism of the project, [Jack Baylis](#), a senior vice president with CH2M Hill, wrote to Mary Nichols, “The original cost projection of the project has been misrepresented. The program is making a difference in the air quality of the surrounding communities.”

Baylis is at least half right. The whole fiasco was set in motion in 1998 when former DWP general manager [David Freeman](#) and water manager [Jerry Gewe](#) settled with Great Basin but told the City Council the project would cost \$120 million. Monday-morning commentary from a variety of sources suggests that Freeman and Gewe cut a risky deal and low-balled the cost projections to get it approved. “Freeman went up there and got taken to the cleaners,” Cahill says. “He had to sell the deal to L.A.”

Nichols, in a recent interview, called the situation at Owens Lake a disaster. “It needs to be changed.” DWP general manager Ron Deaton declined to comment. He has refused to allow his

top managers to comment. When asked to comment, DWP spokesperson [Carol Tucker](#) says, “Why don’t you go ask Dave Freeman? He’s the one who got us into this.”

Freeman stands behind his decisions. “The settlement in Owens Valley was a major accomplishment of my tenure,” he told *L.A. Weekly*. “It resolved 80 years of fighting over water. It was over the objection of Ron Deaton. He wanted to keep fighting in court. [Great Basin] had an open-and-shut case against us. I told him the project would lead to a water-rate increase. I don’t care what anyone thinks. I cannot be held responsible for what happened later. I’m aghast at the cost. I gave us a chance to do something other than solve the problem with water. I settled the thing, hired a contractor and I was gone.”

In a letter to Councilman Tony Cardenas on September 1, 2005, Freeman admitted he gave the city an estimate that was “pitifully low.” He claims he underestimated engineering and environmental costs resulting in change orders to meet regulatory requirements. Baylis and others point to early cost estimates by Parsons Engineering that said the project would exceed \$300 million, which it has. But the fact remains that no one in City Hall wanted to confront bad news at the time. In unanimously approving the deal in 1998, the City Council was either misled or had buried its head in the mud.

The backfilling doesn’t end with Freeman. Baylis recently went before the Commerce Committee along with Harasick and Deaton and emphasized that it is the DWP’s project; CH2M Hill is just an important cog in the wheel, they said, noting that the bulk of the money has gone to contractors such as Boyle Engineering and [Barnard Construction](#), which teamed up on a contract that allowed them to design and build simultaneously. But the design-build approach requires a concept and a goal. CH2M Hill developed those aspects, conducted feasibility studies and acted as construction manager — and technical adviser, and environmental consultant, and regulatory compliance monitor. Despite Baylis’ inclination to share the credit — or the blame — some in City Hall question the scope of the initial audit, which targets CH2M Hill. But Patsaouras insists all construction contracts will be audited as well.

The DWP’s 2003 internal audit of CH2M Hill documents more than \$100,000 in duplicate bills, markups and excessive charges. A draft internal audit obtained by *L.A. Weekly* dated November 22, 2005, states that CH2M Hill employees were using DWP purchasing cards and that CH2M Hill submitted unsupported billings, double billings and charges not supported by the contract of more than \$200,000. The recent draft audit also exposed misuse of blanket purchase orders and poor inventory control.

As low as those amounts are, however, the final version of the 2005 internal audit, released to the City Council after claims of mismanagement were exposed, is scrubbed of most of the improper billing. The final internal audit shifts blame for purchasing abuse to DWP employees for “improperly directing [CH2M Hill’s] employees to use DWP purchasing cards.”

According to sources familiar with Phase 1 of the project, which is now being substantially redone, CH2M Hill ignored the advice of its own inspector and DWP waived performance standards as Barnard sought millions of dollars of change orders. A quality-management expert from CH2M Hill named [Gentry Karr](#) has been vocal in his criticism of designs that had to be

approved by CH2M Hill, the DWP or both, according to two DWP sources and a consultant familiar with the project. “Bad quality, bad design, planned obsolescence [of the managed vegetation component], abandoned pipes and pumps, faulty spillway design,” says a DWP employee, when asked to describe Karr’s criticisms.

Karr appears to have been silenced. He reported attempts to contact him to his bosses at CH2M Hill. He refused to comment. CH2M Hill also recently hired the law firm of Gibson, Dunn & Crutcher to evaluate its performance on the project. The company declined to release the law firm’s report.

Schade and others say they offered advice to CH2M Hill and the DWP about how the lakebed would be treacherous for heavy vehicles, rot out expensive pumps and lead to excessive costs. Like Karr, they say they critiqued the concept and the design. Their advice went unheeded, according to [Frank Stradling](#), a botanist and an economist, and [Carla Scheidlinger](#), a plant ecologist, with a company called Agrarian Research. Scheidlinger also is a member of a group called [Owens Valley Committee](#) and used to work for Great Basin. She and Stradling have extensive experience on the lake. “Frank’s been kicking dirt on the lake longer than anyone I know,” Schade says of Stradling, who has callused hands and mud caked on his boots.

“No one ever did a full-lifetime cost assessment,” Stradling says. “We were testing shallow flooding on a small patch and they came by and told us to stop, that we’d be wasting water. Now they’re flooding the whole lake. Only they’re running it like a greenhouse or a grape vineyard with the most expensive high-tech system possible.”

He and Scheidlinger have photographed their own irrigation tests by airplane. “Even after we showed [CH2M Hill] how to get the best results they couldn’t get their system to work,” says Scheidlinger. “Maybe they thought we were dumb. But now they’re retrofitting the thing because it didn’t work the way they designed it. If someone else designed the project then it’s fair to ask who approved that design. Either CH2M Hill is responsible as the primary consultant or they are not. They can’t have it both ways.”

Stradling and sources at the DWP in L.A. and Owens Valley say there was no plan for flood control. Heavy rain flooded the dikes. They had to be rebuilt. A fiberglass main line to the lakebed from the aqueduct was designed without valves, these sources say. When it leaked, the construction company had to channel all the way back to the aqueduct because they could not isolate sections of the pipe. Schade says he too is mystified by decisions that would have to be approved by CH2M Hill or the DWP or both. And that, after more than \$20 million in change orders, the DWP has decided to redo much of Phase 1. “They’ve never been out of compliance on air quality once they finally got it done,” he says.

After the DWP approved change orders up to the contingency limit on Phase 1, the next several phases were more successful, most agree, except for a costly grading of the lakebed and the use of expensive pumps that could not withstand the toxic soil conditions. But by then the DWP expected to pay a premium for brute force and water. Consequently, the City Council was forced to sign off on several retroactive funding increases approved by the DWP commissioners appointed by former mayor Jim Hahn.

Scheidlinger and Stradling are just two of many who “were ignored and had our feelings hurt.” But that doesn’t explain why the DWP and CH2M Hill plunged down the path they did together. “I have a briefcase full of unfunded research proposals that have been submitted and rejected,” Scheidlinger says. “They didn’t listen to their own inspector, they didn’t listen to us and they didn’t listen to Ted,” Stradling adds. “Why?”

Long ago, before Great Basin and the DWP settled their differences and CH2M Hill came on the lake, the DWP was still clinging to legal stall tactics and was vehement that aqueduct water not be part of any dust solution. Schade says he finds it ironic now that potable water is the magic bullet the DWP has chosen. “I just remember this guy from the City Attorney’s Office, [Ed Schlotman](#), storming out of court one day saying, ‘Not a drop of water out of that aqueduct. Over my dead body.’?”

Lawmakers and observers in Sacramento are skeptical of the Owens Lake project. Great Basin remains the poster child for dust pollution. Even some of Great Basin’s fellow combatants in the water wars against the DWP are wondering if both sides didn’t take a shortsighted view that has taxed natural resources and DWP ratepayers unnecessarily.

Last month, state [Senator Dean Florez](#) convened a [Senate Select Committee on Air Quality](#) to challenge the EPA’s proposal to exempt rural areas from federal PM-10 standards. Advocates and regulators testified that the Bush administration would be ignoring its own science experts if it left rural areas unprotected from coarse-particle air pollution. Schade wowed the audience with a time-lapse video display of a recent dust storm that looked more like a small tornado. In a sense, he was the guest of honor.

Afterward, in an interview in his office, Florez said Owens Lake is the main reason he wants to defeat the EPA proposal. “The proposal sends a message that people who live in a rural district like Great Basin are in a wasteland, and that they don’t matter.” Florez has introduced his own bill to put teeth in California’s clean-air laws, just in case the EPA proposal, pushed heavily by the mining and farming industries, survives. So, what about the 98 percent dust reduction standard that Great Basin has set, and that the DWP is spending hundreds of millions of dollars trying to meet, he is asked. “I don’t think Great Basin has given us a real answer on where they got that number.” Are these unrealistic expectations? “That’s a tough question. It may be too soon to make a value judgment.” Then how do you reconcile the project as a success, when Great Basin holds itself out as the most ravaged spot in the world for PM-10? “I don’t know how to answer that,” Florez says.

The senator winces when he hears how much water the DWP pours on Owens Lake — 50,000 acre-feet per year is more than most cities in his district use. “Even if they meet the air standard I can see more hearings on this,” he says, noting the DWP’s absence from his hearings that morning. Then Florez is asked if Mayor Antonio Villaraigosa’s plans for a “green” Los Angeles signals a policy shift at the DWP and in the Owens Valley. “No,” he says. “His administration has been captured by the bureaucracy that surrounds them. It’s going to take him spending some actual time there if he wants to improve it. He can’t just say he wants it to be better.”

State agencies are bracing for more controversy regarding the DWP, which has approved a \$600,000 contract for the law firm Manatt, Phelps & Phillips to provide environmental and regulatory advice for the next three years. Schade admits his demand for nine additional miles of dust mitigation could be “the tipping point” of the entire deal.

[Michael Kenney](#), former director of CARB, has seen it all before. Now a judge in Sacramento Superior Court, Kenney was rebuked by Great Basin in the 1990s when he opposed its plan to end the battle with the DWP. His own board deadlocked on a proposal and appeared ready to side with Great Basin. “Great Basin came out pretty well on that deal, didn’t they?” Kenney said recently in a telephone interview. “We were looking at a feasible plan for mitigating dust, and Great Basin was looking at water being taken from Owens Valley for 80 years. My staff had issues with the technology and the cost.”

Such tainted history will be difficult to overcome, he says. Emotions drove the last settlement. “DWP loses and Great Basin wins anytime you factor in public sympathy. But there’s a symbiosis. Maybe it’s a codependency. They’re at odds with each other, yet they need each other. They both live with a shared history and they both take advantage of it. At some point water scarcity and money will rear their heads.”

[Greg James](#) is the former Inyo County counsel and former Inyo water director. A native of Los Angeles, he moved to Bishop in 1977 to get involved in the water battles that preceded the dust settlement. James is a neighbor of Ellen Hardebeck’s. He lives in the shadows of the Sierra in a ranch-style house bordered by a ditch flowing with fresh water out of Bishop Creek. “As long as the water comes out of the tap in Los Angeles and it doesn’t cost too much, people don’t care what happens up here,” he says. “It’s hard to get a DWP commissioner up here, much less a councilman or a mayor.”

James sees a broader problem with the DWP’s approach to dust control: Various mitigation projects in Owens Valley have forced Los Angeles to leave an astounding amount of water behind. A 2004 environmental-impact report shows the DWP losing 185,000 acre-feet per year of tasty Owens Valley water for the dust project, the refilling of Mono Lake, the restoration of the Lower Owens River and a prohibition against groundwater pumping pursuant to a historic settlement with Inyo County. That’s more than half the annual total from the aqueduct, projected to average 321,000 acre-feet per year through 2020. Meanwhile Los Angeles increasingly relies on [Colorado River](#) water purchased from the Metropolitan Water District of Southern California. “Same as they drink in San Diego,” James says. “You can taste the difference.”

“Great Basin had ideas but DWP wasn’t interested,” James says ruefully. “But irrigation does produce a habitat for wading birds and shorebirds,” he adds, pointing to Great Basin’s — and Hardebeck’s — emphasis on the return of the snowy plover, for which entire portions of the environmental contract with CH2M Hill are dedicated. “And if there is no settlement then Great Basin is in litigation forever.” James is asked, isn’t that a possibility again with the looming battle over Great Basin’s demand for nine more miles of dust mitigation? “I’m still wondering about that. Why now?”

In retrospect, James says, environmental justice and a sense of reason could have prevailed if Great Basin and the DWP weren't entrenched in a blood feud. A more elegant solution could have been found. "Instead of solving the problem, DWP tried to make it go away by throwing muscle and legal talent at Great Basin. So they were forced to swallow a bitter pill. Now my darkest fear is that they let the project go gangbusters and that someday, someone, be it the City Council, the mayor, a commissioner, whoever, will step in and say, 'This is just too much.'"

<http://www.laweekly.com/photoGallery/index/43487/0/>



Ask the dust



Many question the rationale for irrigating Owens Lake, including Don Odell, whose mission is to hold L.A. responsible for its desecration.



The remains of a 100-square-mile lake that rivaled the Sea of Galilee.



Historian Mike Patterson



DWP adversary: Great Basin's Ted Schade,

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