

City of Davis
May 8, 2002 City Council Agenda
Water Supply Town Hall Meeting Recap

In Attendance

All Councilmembers, City Manager, City Attorney, meeting attendees.

Presentation

Davis Public Works Staff, West Yost and Associates, and Project Attorney.

Public Comments/Questions

Received during the meeting through emails, phone calls, and public comments made at the meeting, and questions from Councilmembers.

Comments, Questions and Responses

Comments and questions from the public or council, and responses to these comments or questions are summarized below. Responses that were given during the public meeting are shown in italics. Responses or explanations, in addition to those made at the public meeting, are shown in italics and within brackets [].

Comment: I'm concerned with the speed of the water study and, more importantly, the absence of the information from presenters regarding surface water. There's new information emerging about what's in Davis water, water from our streams and rivers. I also perceive the water presentations to be biased in terms of pushing the use of water from the Sacramento River. And I feel a need for more written materials from presenters. People who drink surface water are often drinking an incredible stew of compounds or organic waste water contaminants. Here's what river water often contains: steroids, non prescription drugs, insect repellents, detergent byproducts, disinfectants, plasticizers, fire retardants, antibiotics, insecticides, reproductive hormones, other prescription drugs, antioxidants, fragrances and solvents. People are drinking these things, and in combined chemical stews and they don't have a clue. Why? Because we're just starting now to measure them. Right now these organic waste contaminants pass through sewage treatment plants virtually untreated. I don't know if they're removed from Sacramento River water. Do they have carbon filtration? Does carbon filtration remove these organic contaminants? What kind of monitoring of the water takes place? How will that information be available? We're hearing better quality form the river water, but I don't know that from any information I've been given. New advances in the ability to detect pollutants are giving scientists a better idea of what's in our water and whether or not these ingredients pose a threat to humans in the environment. Before we decide which water supply is feasible, we all need more time to consider the serious consequences. I grew up in Minnesota where our neighborhood and summer camps were liberally sprayed with DDT. And we all know what a dangerous folly that was. Pertinent facts:

March 2002 the US geological survey released its first survey of organic waste contaminants in the US surface waters. They are in 80% of the US streams and rivers tested in 30 states. 33 of the compounds found in streams are expected to be hormonally active and these chemicals include steroids. How do they get into our water? Pass through sewage treatment plants, they are in our landfills and feed lots and reach down into local waters. Antibiotics are the most troubling. In agriculture they are used for hogs, chickens and cattle to promote growth. Bacteria will be increasingly resistant to these antibiotics because we'll be so overexposed to them. I attended a group presentation on the feasibility study and after wrote requesting written materials regarding organic materials. I was told I would receive written materials in March but have not received them. *Christian Science Monitor* had a front-page article March 21, 2002 called "What's in your Water?" I urge you to read this and it can be read online for a small charge. The esteemed professional journal *Environmental Science Technology* 351202-121 reports on the issue. I include a copy of that article for the record. The title of that article is "Pharmaceuticals, Hormones, and other Organic Wastewater Contaminants in US streams 1999-2000 – A National Reconnaissance". I urge all officials to study these issues carefully. I urge our officials to direct the presenters of the water feasibility study to present the thorny problems involved and discussed here. I believe the people need written materials on these new issues plus others plus more time in making intelligent decisions.

P.S. in 1957 or so the City of Davis decided not to use any of the Berryesa reservoir water because we said we didn't need it. Well, since the time that was built, our city has tripled and we realized that was a very silly decision.

Meeting

Response: The USGS study referred to is summarized in the draft water supply study, which will be available in about a week. Three points are (1) the USGS sampled directly downstream from wastewater discharges. The sampling site in the Sacramento River was at Freeport directly downstream of where Sacramento County discharges their wastewater; (2) very minute concentrations were detected; and (3) West Sacramento is currently expanding their water treatment plant to include GAC in their filtration system and GAC is designed to remove organic constituents.

[Additional

Response: The U.S. Geological Survey (USGS) study involved sampling a number of rivers throughout the United States to measure concentrations of pharmaceuticals, hormones, and other organic constituents found in wastewater. The study used newly developed laboratory methods capable of measuring minute concentrations. Samples were taken downstream of major wastewater discharges. One of these sampling sites was on the Sacramento River, downstream of the discharge from the Sacramento Regional Wastewater Treatment Plant (SRWWTP).

On the average day the SRWWTP discharges 165 million gallons of treated wastewater into the Sacramento River near the town of Freeport, about 20 miles downstream of the City of West Sacramento's water supply intake. The USGS collected a sample directly downstream of the SRWWTP discharge to the Sacramento River, and analyzed this sample to measure concentrations of 95 pharmaceuticals, hormones, and other organic constituents found in wastewater. Trace concentrations of 3 of these organic chemicals were detected in this sample (acetaminophen, cholesterol, and mestranol).

To more fully address the concern raised at the public meeting, commercial laboratories were contacted to determine whether they could perform the type of analyses conducted by the USGS, however they indicated that they could not perform these analyses. A USGS representative was then contacted to determine whether the USGS would analyze a sample collected at the City of West Sacramento's water supply intake, to determine whether the 3 organic constituents detected at Freeport are present at this location. The USGS representative contacted indicated that unapproved experimental test methods were used to measure low levels of these constituents, and therefore the USGS laboratories will not conduct these tests for outside agencies. As a result, while it is unlikely that the organic constituents detected by the USGS at Freeport are present at the City of West Sacramento's water supply intake, this cannot be confirmed at this time. In the event that these methods are approved in the future and the USGS laboratories will conduct these tests for outside agencies, samples collected at the City of West Sacramento's water supply intake will be analyzed for the presence of these constituents in conjunction with future water supply planning and implementation steps.

The USGS is currently conducting two additional sampling investigations to determine the presence of trace organic constituents. One investigation involves sampling of groundwater sources, and the second involves sampling of surface water supply sources at locations that are not directly downstream of major wastewater discharges. The results of these studies will be monitored in conjunction with future water supply planning and implementation steps.

The following comparisons are provided to illustrate the magnitude of the levels of organic constituents detected by the USGS in the Sacramento River at Freeport. Acetaminophen is a substance used to relieve pain and reduce fever. Tylenol is a brand name for this substance. The USGS measured a concentration of 0.025 µg/l in the sample taken downstream of the SRWWTP discharge to the Sacramento River. For comparison purposes, the recommended adult dose of this substance for pain relief is 325 or 500 milligrams (mg) every three or four hours. It would be necessary to drink more than 5 million gallons of water containing 0.025 µg/l of acetaminophen to obtain 500 mg of this substance. Cholesterol is a form of fat found in the bloodstream. The USGS measured a concentration of 0.383 µg/l in the sample taken downstream of the SRWWTP discharge to the Sacramento River. For

comparison purposes, the American Heart Association recommends that a healthy person limit their average daily cholesterol intake to less than 300 milligrams. It would be necessary to drink more than 200,000 gallons of water containing 0.383 µg/l of cholesterol to obtain 300 mg of this substance. Mestranol is synthetic estrogen. The USGS measured a concentration of 0.011 µg/l in the sample taken downstream of the SRWWTP discharge to the Sacramento River. For comparison purposes, a common birth control pill contains 50 mg of mestranol. It would be necessary to drink more than 1 million gallons of water containing 0.011 µg/l of mestranol to obtain 50 mg of this substance.

Federal and State laws require monitoring and reporting to ensure drinking water quality. Water purveyors must monitor drinking water quality and measure concentrations of microbiological contaminants, minerals, physical agents, inorganic chemicals, organic chemicals and radioactivity present in the water supply. This information must be summarized in an annual water quality report to consumers. Currently Federal and State laws do not require monitoring of many of the constituents found in the USGS study. As more information regarding the presence and potential impacts of these constituents on human health becomes available, monitoring requirements may be revised to include these additional constituents.

Regarding carbon filtration, it is not currently used at the West Sacramento Bryte Bend Treatment Plant, but carbon filtration is being added as part of a current expansion to the plant. Granular activated carbon is generally very effective in removing soluble organic constituents.

If the constituents detected by the USGS in wastewater discharges are found to be detrimental to human health or to the health of other life forms, it is likely that maximum levels will be established in the discharge limits of wastewater treatment plants. Treatment processes would have to be added to these plants to achieve levels that are determined to be safe.]

The U.S. Geological Survey (USGS) study is available at the following web site <http://toxics.usgs.gov/pubs/OFR-02-94/index.html>. A link to the USGS web site will be added to the City's water web page (<http://www.city.davis.ca.us/pw/water>). In addition, the City's web page will contain information on treated surface water quality in the form of the City of West Sacramento Annual Water Quality Report. Additional information may be added at the request of the community.

Question: Will treated surface water improve water alkalinity?

Meeting

Response: Surface water in the Sacramento River has a lower alkalinity than groundwater from either the intermediate or deep aquifers.

[Additional

Response: Alkalinity refers to the capability of water to neutralize acid. It is an expression of buffering capacity. A buffer is a solution to which an acid can be added without changing the pH appreciably. Generally harder water has a higher alkalinity because the main source of alkalinity is usually from carbonate rocks (limestone) which are mostly CaCO₃.]

Question: How much water does UC Davis use per year and is it metered? How many years will the deep aquifer last? Where do nitrates come from? Can deep wells be separated from intermediate wells?

Meeting

Response: The campus has two water supplies currently. The domestic system is exclusively supplied by the deep aquifer. The amount of water withdrawn from the deep aquifer is metered, and about 900 million gallons a year are withdrawn from the deep aquifer. A separate utility water system withdraws about 250 million gallons of water a year from the intermediate depth aquifer for landscape irrigation.

Regarding how many years the deep aquifer will last, the short answer is that no one knows. The City and UC Davis have conducted tests of the deep aquifer, but we do not have enough information to assess the reliability or capacity of the deep aquifer at this time. The Water Supply Study recommends additional monitoring and testing.

Regarding the source of nitrates, the most likely source is agricultural fertilizer, but septic tank effluent is another potential source.

Regarding separation of the intermediate and deep aquifers, clay layers naturally separate the two aquifers, and they have different water quality characteristics.

Question: Can water from intermediate depth wells be used for irrigation, and can you separate the water from the intermediate wells from the water from the deep wells?

Meeting

Response: The problem with trying to use intermediate depth wells solely for irrigation is that the City would need two separate distribution systems. UC Davis does have two separate systems, one that uses intermediate depth groundwater and a second that uses deep groundwater.

[Additional

Response: To provide additional information regarding this issue, a supplement is currently being prepared to the draft Davis/UC Davis Joint Water Supply Feasibility Study. This supplement will address the use of water from the intermediate depth groundwater aquifer, or reclaimed water from the City of Davis Water Pollution Control Facility, for irrigation purposes. This supplement will provide the results of an investigation of the feasibility of

constructing separate irrigation water supply facilities to allow the City of Davis to meet outdoor irrigation water demands with either reclaimed water or water from the intermediate depth aquifer.]

Comment: Please consider acquiring surface water from the American or Sacramento Rivers or perhaps from Lake Berryessa. Winters, Woodland and Dixon might be interested in participating in a Berryessa pipeline as well. I urge you to take this into consideration. It may be costly in the short run, but I suspect that it would a very wise long term investment. I believe that anything we can do to make use of the higher quality surface water as opposed to well water makes a good deal of sense.

Meeting

Response: As far as the Berryessa component, which seemed to be the main part of that question, the problem is that the entire yield of the Solano project, which is basically Lake Berryessa and the associated facilities, has already been committed by contract. Almost all of it goes to water users in Solano County. The University of California gets 4,000 acre-feet per year for its field teaching and research activities. Lake Berryessa is an extremely valuable source of water and I think it's just unrealistic to think that there's any way in the world that the Solano agencies would ever give up that supply.

[Additional

Response: Regarding a diversion from the American River, in 1970 the East Bay Municipal Utility District (EBMUD) entered into a contract with the United States Bureau of Reclamation to divert water from the American River, through the Folsom South Canal. Following 30 years of controversy and litigation, EBMUD agreed in 2001 to change its point of diversion to the Sacramento River. Irrespective of water rights or availability issues, past experience would indicate that a Davis and UC Davis could not implement a project that entailed diverting water from the American River. Regarding a diversion from the Sacramento River, the alternative recommended in the draft water supply study involves diverting water from the Sacramento River through West Sacramento's water treatment plant.]

Comment: Both of the alternatives assume a 20% demand management component. That means that avenues would be pursued to reduce consumer's consumption by 20%. By installing water meters we put ourselves in a good position to bring that about.

Meeting

Response: Agreed

Comment: A previous comment made it appear that there are a lot of different things in river water that we're not aware of, and that drinking this water is almost like being on "Fear Factor". Hopefully a water filtration plant would remove

anything that is harmful. The thing that disturbed me was that we're taking water out of a deep aquifer that is 8,000 to 17,000 years old and we're down in the deep aquifer because there are problems with the intermediate depth aquifer. That tells me that the deep aquifer is not being recharged very much, and this water is a limited resource.

Meeting

Response: We have the same concerns regarding recharge to the deep aquifer.

[Additional

Response: The expanded West Sacramento water treatment plant will include granular activated carbon filtration which is effective in removing dissolved organic constituents.]

Question: The draft report indicates that the Davis water rights application could be rejected due to lack of diligence. What time is the time frame during which we must show diligence?

Meeting

Response: That's a very good question but unfortunately, I can not give you a very clear answer. There is no specific rule that governs diligence. The State Water Resources Control Board decides on a per-case basis by looking at all the different factors. To put this into practical terms, assuming that this Feasibility Study Report is finished sometime this summer, I think that the State Water Board will be looking at these applications very closely and unless there is a prompt going forward with the EIR preparation, and by prompt I mean within a year, I think there is a very serious risk that these applications (the City's and the University's) will be cancelled. The State Water Board knows a lot about how to process applications and they know the next step is an EIR and if that EIR is not started, basically nothing else can happen. I think the answer is that the EIR process has to be started within a year of completion of this report to show diligence on the water rights application.

Comment: Are there other communities in competition with Davis and UC Davis for these types of water rights?

Meeting

Response: Very definitely. Just to put it in simple terms, supposing this application were cancelled and we filed a new one tomorrow. Davis and UC Davis would be behind the Glen Colusa Irrigation District, which filed an application for winter diversions on the order of 1,000 cubic feet per second, which is a lot of water even from the Sacramento River. The cities of Fairfield, Benicia, and Vacaville filed an application in 1998 for about the same amount of water we're talking about here, approximately 30,000 acre-feet per year. Their application was filed after ours, but they have the advantage that the North Bay Aqueduct (which they would use) is already constructed. They are scheduled to have their water rights hearing in June, next month, and potentially to get their permits soon after that, say by the end of the year.

There are probably others as well so the answer is yes, there are some competitors who desire additional or new allocations from the Sacramento River.

Question: How much of the total water used within Davis is used to irrigate landscaping at City facilities?

Meeting

Response: About 5 to 7% of the total annual production. The annual percentage varies somewhat as a result of weather patterns or development of new City facilities.

Question: How much reduction does the study assume in the use of bottled water, in the event that the City was supplied with surface water?

Meeting

Response: The study assumes that there will be little change in the use of bottled water irregardless of what source(s) the City relies on in the future. However the study assumes that there would be a significant reduction in the use of water softeners in the event that the City is supplied with surface water.

Comment: I would like to see more explanation of the basis for calculating consumer related costs.

Meeting

Response: This will be provided. These cost were based to a large extent upon a study conducted in Southern California.

[Additional

Response: The primary reference use to derive these costs was a salinity management study conducted by the Metropolitan Water District of Southern California and the USBR. An explanation of how these costs were derived will be presented at the City of Davis NRC meeting on June 24th, as well as the draft and final reports.]

Comment: This study concludes that there is no growth inducing effect of importing surface water. I know that Santa Barbara has used the restriction of water supply to control their growth. The lack of water would in fact control growth.

Meeting

Response: Currently there is adequate poor quality water to support growth, therefore obtaining surface water is believed to be a water quality issue rather than a growth inducement issue.

Comment: To be diligent, we should invest in some water diversity. My concern is that in the county that we live in about 95% to 98% of our water is consumed by agriculture. Since such a large percent of the water is used for agriculture, it

seems that we should address the efficiency of this use. In my mind, we're like the fly on the elephant as far as usage.

Meeting

Response: In rough numbers in Yolo County, I believe about one-half of the water used by agricultural water comes from surface water that the Yolo County Flood Control District provides from Clear Lake and Indian Valley Reservoirs, and the remaining roughly one-half comes from groundwater. The mix changes depending upon annual rainfall. I believe almost all of the groundwater that agriculture uses comes from the intermediate aquifer and that some of the water quality considerations are not the same for irrigation use as for domestic use. Firstly, I don't think there is very much irrigation from the deep aquifer. And secondly, agricultural water use is not something that the City or the University have great control over legally because the use occurs outside of their boundaries. It is a good point. Everyone in the county should obviously be efficient and conserve water and certainly work together on that, but I'm not sure it would address the problems we're talking about here.

Comment: Are there new technologies or processes that we could use to treat well water.

Meeting

Response: There are ways of removing specific constituents, some constituents are more difficult to remove than others. Constituents such as manganese are easy to remove. Arsenic is tougher to remove. Selenium and a variety of constituents can be removed by reverse osmosis, however this process produces a brine stream that is difficult to dispose of.

Comment: Many of the City's wells are in neighborhoods and have limited space around them. I don't know how would you even practically fit some kind of filtering equipment there.

Meeting

Response: Agreed, many of the City's existing well sites lack space to accommodate treatment facilities.

Question: Can we get water from Sacramento River?

Meeting

Response: The answer is that we can still obtain Sacramento River water, under certain water conditions, but not during all 12 months of the year every year. Water should be available during all 12 months out of the year in the wettest years, about 9 or 10 months of the year in average years, and slightly less often during the driest years. So the answer is yes, there is water to be appropriated from the Sacramento River, basically during the times of higher supply. I think the other half of the answer is, as mentioned before, if the project alternative that is selected requires diversion of summer water during months when water from the Sacramento River is in short supply, water would have to be purchased from upstream water rights holders who have the senior water

rights.

Question: Lawns require a lot of water for irrigation. UC Davis has almost all lawns. Would UC Davis consider eliminating lawns? And the second part of the question is “Is UC Davis irrigation water metered?”

Meeting

Response: *I don't know of any current initiatives to get rid of the lawns at UC Davis. That's certainly something that could be considered as part of our long range plans but I don't know of any current plans. We prepare long range plans and the environmental documents for all of our projects, a lot of mitigation measures that stress conservation for new areas and existing areas and so we do a lot of work where possible to install low water use landscaping on the campus. But I think that most people agree that the lawns have a place on the campus, and do a lot to beautify the campus and support our mission. With regard to the metering of the use, we don't have water meters installed in individual fields or buildings for the most part on the campus. But we do keep very good records of how much water we use in total from the wells. So we do have accurate records for how much water was used in total for all of those purposes. Just another initiative to mention, we currently have several initiatives going on that are looking at the idea of using reclaimed water on the campus from the wastewater treatment plant and using water that we send through the arboretum waterway to water our landscape on the campus. So our focus in recent years is trying to get more use out of our existing water supplies and put it to use in new ways.*

Comment: I am an associate engineer/geologist with the Department of Water Resources Conjunctive Water Management Branch. As a technical reviewer for water projects throughout the state, I've seen quite a few. I'm speaking tonight because I'm a Davis citizen and I've lived here for 20 years and I'm a homeowner. It has been a very interesting talk that you've presented here tonight and there are numerous things for which I would commend the City, for example, conservation efforts is one item. One of the questions I had: one of the things that came out was the need for more groundwater monitoring, getting to know the deep aquifer. An example in the San Joaquin Valley on the western side where they have a deep aquifer that is also under a confining layer but toward the western side of the valley they are able to create groundwater basins to recharge into that region. Has something been looked at, let's say we use this as a map of potential recharge sites, does the deep aquifer come up or is the confining layer limited on the western side out towards Winters? That's a question to raise. I think that coming from multiple directions to have multiple types of water accessibility from the river or using Berryessa as a conveyance and getting a further upstream source, for instance Indian Valley, or creating other recharge sites within our valley here by the use of say, rubber dams which are being used in the Los Angeles Basin, would be a way to enhance and multiply our water.

Comment: I suggest that we hold a water quality forum as part of the June NRC meeting. What we could do is address many things that have been brought up today very succinctly based on the public input we get, and get some responses back to you as part of your review.

Meeting

Response: Agreed. A special workshop will be scheduled in June with the City of Davis NRC to discuss water quality and other issues raised during this council workshop, and this information will be included in the final report.

Additional

Response: This workshop is scheduled for June 24, 2002.