Peter Kavounas (00:00:00):
Good morning. Hi,

background audio 1 (00:00:01):
I'm Chi

Peter Kavounas (00:00:02):
Ochoa. How we know for the tour. Yes. Good morning. I'm Peter Kaunas. Hi. I'm the general manager. Yes, this is Andy Malone,

background audio 2 (00:00:10):
Engineer. Yeah, I'm a geologist but

Peter Kavounas (00:00:13):
They call him, he's mislabeled as Engineer. Engineer. This is Brian Guy. Nice to

background audio 1 (00:00:17):
Meet you. Brian Guy.

Peter Kavounas (00:00:18):
Brian Guy is the chairman of the overlying non-agricultural pool committee. Okay,

background audio 1 (00:00:23):
So he's one of the pool representatives.

Peter Kavounas (00:00:24):
Yes, one of the pool representatives. This is Alonso Rado. Alonso is staff and he is our designated driver for the day, making sure all arrangements work. And Alonso will actually mic you up. If we could ask you to sign in, he'll mic you up. So everything is recorded.

background audio 5 (00:00:43):
Chris, the city of Pomona. Nice to meet you. So we are turning on, it's recording. Time to time, just give this a working for us and I'll put this on so you're liking, you can adjust it from the back as well. We just click that on. Okay. And how do I turn off when I start cussing? That's a tough one. Yeah.

Peter Kavounas (00:01:21):
So lemme introduce you to Mr. Finra. Judge, this is Bob Finra.

background audio 1 (00:01:27):
My

Peter Kavounas (00:01:27):

Pleasure. Bob Finra is the chairman of the Overlying Agricultural Pool Committee and he's also an observer for the tour today. Alright, and this is Kelly. Kelly works at the office. So this is us for today. We have three observers. You have Andy and myself. We're very comfortable going by first name if that pleases you. That's fine. So in terms of the arrangements for the day, instructions for the observers, your primary role is to observe. Feel free to answer questions the judge may ask of you. Feel free to answer to supplement questions. The judge asks, supplement answers that Andy and I give to the judge. Other than that, your role is to observe we're all micd, all recorded. This all will be transcribed at the end of the day. In terms of tour logistics, we're going to have a brief introduction here. We're going to hop in the van, we're going to follow an itinerary.

(00:02:32):

We do have a lunch stop planned at a yellow park. Lunch will wait for us there. We do have stops along the way where there will be access to restrooms. If you do need a restroom in between, just let us know and we'll make a stop in between. We do have some waters and some snacks in the van in case somebody, their natural rhythm is a little ahead of themselves and they need to eat something. But it's basic minimal things by way of introductory materials. I wanted everyone to know, we've got a copy of the stipulation that was filed with the court here. You don't need it, but if you wanted a copy, it's here. We have some material that we're going to refer to. This is the material that was filed with the court as part of the stipulation and also other maps and exhibits that have been filed with the court on prior occasions. And we will be referring to those during the tour. And finally, we have a laminated map because we love maps. Any questions,

background audio 1 (00:03:39):

Pete, can we just grab this stuff

Peter Kavounas (00:03:41):

Now? Yes, please. Please. By all means

background audio 1 (00:03:44):

That on my phone.

Peter Kavounas (00:03:48):

So,

background audio 1 (00:03:49):

Oh, the other thing I had is I was just wondering if maybe we could have some introductions. I know you've all introduced yourselves, but I'm really kind of interested is your background

Peter Kavounas (00:04:00):

Yes.

background audio 1 (00:04:01):

That brought you here.

Peter Kavounas (00:04:04):

Would you like the observers to introduce themselves as well? Absolutely. So, so my preference would be to go with the pools are numbered in the judgment. So I agricultural pool is number one. They also hold the largest water. Right.

background audio 1 (00:04:17):

And again, who's the ag

Peter Kavounas (00:04:18):

Rep? Mr. Finster, the

background audio 1 (00:04:19):

Non-ag and the appropriation group.

Peter Kavounas (00:04:22):

So Mr. Finster, please introduce yourself in a little bit of you have gloried and storied history in the basin. And so please,

background audio 3 (00:04:31):

Your Honor, I'll keep 'em really short. I could go on just to

background audio 1 (00:04:36):

Give, well, you come me all day.

background audio 3 (00:04:38):

Give you a little background. I think this is something anyway, and that is what made California the gold rush and agriculture water. So as Peter said, we are the largest water holder in the basin and that was accomplished by giving water, water to the cows. We had 400,000 cows out here. We also had a lot of farm ground. Notice the word also, it's been replaced by industrial buildings and homes. The state of California. We have two very, very large prisons at the main institution for men. We lease farm 1200 acres there for animal feed, fresh animal feed. So we do a lot of farming at that location and also some farming at the women's prison. All in all, we're down to about 40,000 cows from 432,000 cows. But that happened in Paramount, Bellflower, Artesia, dairy Valley, Mo Palma, the cows sort of moved to the east.

background audio 1 (00:05:55):

So the base and its history is changing, which is what brought us all here. They recognize that in the seventies and that's why the judgment in 78 came to be because from the twenties and thirties, which is primarily agriculture to the seventies where there was a complete change really shows you where we are. But the best story about the importance of water is probably the Owens River Valley situation where it tells you how important water is to a community because that really kind of built LA when they stole, I mean appropriated that water from the valley and it had very dire economic consequences for the Owen River Valley, which continued to today with things that you don't even think about, like air pollution because there's no water there to cover the dry lake bed and they have some of the worst air pollution in the state. You wouldn't think that because it's so beautiful there and there's not a whole lot of people or industry, but very important water lessons.

Peter Kavounas (00:07:01):

And you were the general manager of

background audio 3 (00:07:07):

I was the milkman. So my advocacy of the claim was this big milking hand and working on a dairy farm for the family. But being in that organization, we formed the California Mail producers. We formed a big agency in Washington DC So because of regulations, because of laws, we needed a lot of help. And so that's why this water master is really important to all of us. What's going to happen with the future

background audio 1 (00:07:43):

I e economically and just health wise with all the stakeholders and the water quality definitely.

background audio 3 (00:07:55):

Well that's come up once or twice. We

background audio 1 (00:07:57):

Might

background audio 3 (00:07:57):

Have, we have grade a milk. So the standard is the water has to be pristine. You cannot have contaminated water giving it to cows. So yes, because of the water quality, because of the regional water quality control boards, state laws and so on and so forth. I'm happy to tell you we have in most of the area pristine water. Great. A water. Now we have some areas that got contaminated because of the Korean War and World War II is T C E and Chromium, but that is isolated and being treated constantly.

background audio 1 (00:08:41):

Well, I know we have great water in Rancho, which is where I live because I read that water report every year that comes from the water district. I don't know how many citizens read it, but it's important.

Peter Kavounas (00:08:54):

Not many. Yeah,

background audio 3 (00:08:55):

Probably not.

Peter Kavounas (00:08:57):

When were you first involved with Water Master?

background audio 3 (00:09:00):

Oh God. How about at the beginning? So we managed the dairy industry and most of the agriculture. But right away I started in Paramount for the Paramount County Water District. I was 24 years old when I was elected. So the water thing has followed me my whole career. So Water Master was formed and some interesting things happened that was political and that was a senator said, you're no longer going to have water rights, you will have a pool of water, but we're going to form a water master so you'll not

own the water rights. So that was quite a challenge for a loud mouth. Dutchman, what are we going to do about all those water rights? So there's quite a history, but yes, from the beginning and of course in and out because of all the legislation either in Washington or Sacramento. But we've had people here at the AGCO attending the board meetings that we very much involved for lot of year.

background audio 1 (00:10:10):

Well, as I said one time in court, whiskeys for Drinking, but Waters for Fighting,

(00:10:15):

Right?

background audio 3 (00:10:16):

Yes. Mark Twain. There's a bench down the road as you travel down Archibald and you'll see a monument up by a bus seat. And that was one of our former chairman Farmer from this area, Grove Grayer Grower and Wine of course, but quite a guy and he was still in his eighties serving on the Water Master. So there's a lot of history

Peter Kavounas (00:10:42):

And the land use,

background audio 1 (00:10:44):

Like the Obiwan Nobi,

Peter Kavounas (00:10:49):

The land use change that you're aware of is something that will come up during our tour today. It does the past and the way it has changed, of course he was foreseen in the judgment, but it plays out in everything we're going to see today. Brian, an introduction from you.

background audio 4 (00:11:05):

Sure. My name is Brian Guy. I'm the senior director of Operations at the Speedway in Fontana. So I'm a NASCAR employee. We got into Chino Basin because the Speedway was built on the side of the old Kaiser steel mill, which was an original party to the judgment in 1978. So we took over the water rights from them. So we used those white rights at the Speedway. I've been involved in Water Master now, trying to think, 15 years or so. And we had another gentleman at the racetrack who this was his baby for a while, and he unfortunately passed away and I jumped in to takeover. You might, I don't know if you remember Les Richter at

Peter Kavounas (00:11:46):

All. It was before me.

background audio 4 (00:11:47):

That was before your time. And I've been to the Speedway since 1998, so I've been in the area a long time. Our neighbor is Cal Steel, who's another remnant of Kaiser Steel who has water rights in the area and they're on a non agricultural pool. Ours is a smaller pool, and so a lot of us share a lot of different roles. So not only do I share non-ag, but it's my turn this year to chair advisory. I'm an alternate board

member. I hate to say we're a little bit of slim Pickens of warm bodies in our pool sometimes, but we are. But we're happy to be here and happy to be on the tour today. We just drive fast and turn left usually where I work.

background audio 1 (00:12:32):

Brian, do you deal with the potential chemical blooms from being on that old Kaiser property that

background audio 4 (00:12:42):

Well, thankfully when they took care of the site, they remediated a vast majority of it. We have one small environmental cap parcel that we have to be very careful with. But otherwise, the site got cleaned up pretty well through Kaiser Ventures, which was the remnant of the steel mill when it went bankrupt and the D T S C. So we think we feel comfortable every day in our office that there's not magic contamination floating up and we tend to try to not do a whole lot over the cap area. So that's it. Chris, happy to talk about racing all day.

background audio 5 (00:13:25):

Chris Digs, I work for the City of Pomona. I'm the director of water resources. I've held a number of positions actually in this area. I was also with font, Montana Union, the director of operations there. I worked for the Montana Water Company for a dozen years. And then I was also in Redlands for about 10 years. Been working around Water Master for about 20 years. I've been in the industry over 28. Actually started in the field with piping around fixing leaks, things of that nature. As Brian said, I also was vice chair of the advisory vice chair of the appropriate pool. And I'm apparently the chair of the appropriate pool. So I rely myself not as long as Mr. Banstra, but to me it seems like a long time.

(00:14:15):

And so LA County I assume has some water master for their basin. And why isn't Poona part of that? Or is it just because of the natural geology? It just kind of makes it, it's not as, those lines aren't drawn by county lines or city lines or anything of that nature. It's drawn by the boundary of the basin itself. So the geology? Correct. And so we produce, we Pomona produce a little under 10,000 acre feet per year from the basin. Our production's about 25,000. It's down since a lot of conservation, trimmed back probably 10,000 acre feet somewhere in that neighborhood. We overly three different basins. The spotter basin, very small. We don't actually produce anything out of the basin. It's very, very small. Chino Basin is definitely our largest source of water, about 9,500 acre feet per year. And then we overly a pretty significant portion of the six basins, which is north of one Inc. Includes Pomona and then goes north into Claremont and Laverne

Peter Kavounas (00:15:19):

Pomona straddles geologic faults. And so they're partly in one basin, partly in another, partly in another.

background audio 3 (00:15:27):

It's all geology, no lines on a map.

background audio 5 (00:15:31):

Three groundwater basins, actually.

background audio 3 (00:15:33):

Yeah, it's RA six basins and genome.

Peter Kavounas (00:15:39):

Andy?

background audio 2 (00:15:40):

Sure. Andy Malone. I'm a principal geologist at West Yost. Formerly it was a company called Wildermuth Environmental. Never heard that name. Mark Wildermuth was an important engineer here for many years, but I was educated as a classical sedimentary geologist. And when I hooked up with Mark in 1996, he was in the groundwater business. And so everything I've learned about groundwater was on the job training. But back in those days, mark was hired by the water master to help develop the Optimum Basin Management program. That's one of the first things that I started working on here and been working here ever since. So really grew up in the industry, in the space and it's been a long time now going on almost 30 years. So yeah, we work here. We work in the six basins where Chris pumps from as well and the spotter basin. So just really familiar with the area and it's become a second home.

Peter Kavounas (00:16:56):

So a little bit about me. I have a degree in civil engineering, very kind of broad-based civil engineering. And in the beginning of my career I had an interest in structural engineering. So I moved on to structural for a little bit until I came to realize that water resources was my calling. So at the time, at the beginning of my career, I worked at LA Water and Power and I switched from the power system to the water system and I worked in the aqueduct division in the aqueduct division. I learned everything I know about groundwater. I went back to school and got my second master's degree, this one in water resources. I was assistant to the water master for the San Fernando Basin. I worked on Owens Valley, I worked on Native American water rights supporting the city attorney's office there. I worked on Mono lake restoration and the more and more my career went, the more and more I came closer to water and nature, which are the stuff that is near and dear to my heart. So eventually I left the city and I went to work for the City of Glendale. I ran the water department there for about a decade. And about 10 years ago I came to Water Master. I've been here ever since.

background audio 1 (00:18:29):

Okay, well I'll just tell you a little bit about myself please. This is my 38th year in law. I was an attorney for 22 years. The rest of that time just been on the bench and started out as the DA in Orange County for a few years after I left that I had been civil for the rest of my career as an attorney. And virtually all my years on the bench has been in a civil assignment other than one year that I did criminal as an attorney. Like I said, I practiced criminal law as a prosecutor, as a defense attorney, and as a civil attorney. I did both prosecution and defense, worked for small law firms, large law firms, worked for the government, obviously being a DA and had my own office as well. So I did a lot of different stuff as an attorney.

(00:19:31):

I actually had a lawsuit a couple years ago that I tried. It was a Kaiser case where they had bought over some water rights that weren't clearly identified in the whatever agreement they had to purchase the land. And that was about a four week trial as I recall. Very interesting, but have had a few water cases over the years. But you all know that Judge Riker had this case for a long time and Riker, nobody really kind of knew what Riker was doing with the water case. We just knew it was an area that nobody

wanted to go to, so to speak. And he did all his own research and was kind of this hermetically sealed bubble as far as what was going on there. So consequently when he left, we were looking for somebody to take over and unfortunately we didn't have any of his research for his opinions.

(00:20:36):

So whoever was going to take it over is just pretty much going to kind of take it over from scratch and didn't really have the benefit of all that research that he did. I don't know if you know, but he started out as a research attorney for the courts, so I'm sure he was a pretty good researcher. He's probably on top of everything for all of the court hearings. But anyway, I ended get up getting the assignment and I'm very happy to be here. I don't think I've ever asked for a jury view like, oh, these things kicking and screaming. But I'm really excited to be here today and learn a little bit more about what happens and what you do. And it's tremendous resource for the county that it needs to be managed sustainably to the benefit of all the stakeholders. So that's a big lift for all that you do and I really appreciate all the work that you guys do that to accomplish it. And the public member really hears about what happens and here and that's a good thing. It means you guys are doing your job. If you guys have screwed up, you'd probably be in the paper a lot more, but I just appreciate all the hard work and effort that you put in. It's going to be pretty rewarding. Manage such a valuable resource.

Peter Kavounas (00:21:57):

I think I can speak on behalf of everyone, all the stakeholders on the board and saying how much everyone appreciates you for asking to do this. It shows tremendous commitment on your part and I think everyone's confidence in your engagement and your future decisions has gone up dramatically because of this. Because you're not just taking it on as a case. I'll figure it out as it comes. I want to learn from scratch. So we thank you for that. So this is the laminated map. There's available copies available for you there. It's also in the little packet that everyone's welcome to take. I wanted to just give you a brief orientation of the basin and our tour today. We're very familiar with this map. We look at it all the time. But to somebody who's not seen it before, it might not mean as much. So what you have in the red line is the adjudicated boundary of the basin itself.

(00:23:05):

And you'll notice that there are different colors. The peach is actually the geologic, the physically defined chino basin, and you'll notice that it doesn't exactly overlap with a red line when it was adjudicated, it was done for legal reasons, didn't quite match up with the geology. As a side note that came up when the Sustainable Groundwater Management Act was adopted, that created some challenges for us because we have some portions of the basin that are not adjudicated and yet needed to be managed according to state law. So that was a whole other chapter we had to dance through. Prominent features are the Santa Ana River, which begins up at Seven Oaks Dam. We are in the Santa Ana River Watershed. We're a small portion of it. The Santa Ana river begins to the east of us and flows through the southern part of Chino Basin. It has tributaries that come up from Temescal Canyon. It necks down at Prado Basin and from there it goes out to Orange County.

(00:24:20):

So that is a very important feature and the Santa Ana River will come up many times during our conversations. Today to the north we have the San Gabriel Mountains and generally water flows from the north to the south toward the river and Prada basin and out of the basin. That is the case for surface water and it goes through the drainages. Mount Baldy, San Antonio Mountain drains through San Antonio Creek. You have Cucamonga Creek Day Creek and they all drain south. They catch the river, they neck down a product basin and flow out groundwater flows in the same general direction. It flows from

the north to the south water that is delivered to customers' homes. After it's used, it becomes wastewater. It also flows from the north to the south. So accordingly, our trip today is oriented to go from the north to the south.

(00:25:27):

We're going to follow the flow of the water all the way down. We'll find ourselves. At one point we'll find ourselves in Prado Basin, and that's when you'll know you've reached the bottom of the basin. So we can't talk about groundwater without really talking about imported water because the waters are intertwined. In the beginning of time, it was only farming. Farmers relied on wells, they pumped groundwater, and then when it rained, rainfall and the Santa Ana river replenished the basin. But as time changed and population grew, there had to be more water brought to the region. You're probably familiar with the formation of the Metropolitan Water District, Colorado River Aqueduct State Water Project. So imported water was brought in. That by the way, is why the Chino Basin Municipal Water District was formed in the first place was for the region to have a Metropolitan Water District member agency and have access to imported water. Chino Basin Municipal Water District was of course the first water master appointed by the court, which changed in 1998 with a subsequent court order to be the nine member board that it is today. I don't want to go too far into that. I'm going to stay focused on our tour and the basin. But speaking of imported water, there is a facility owned by Metropolitan Water District called the Rialto Feeder that runs along the foothills of the mountains

(00:27:05):

And it takes state water project imported from the north and it moves it to the east. So this region here has access to the imported water through primarily two locations. One is the Cucamonga Valley Water District, Lloyd Michael Water Treatment Plant, which we're going to visit today. That's where your water comes from for your home. And the other is the Water Facilities Authority Treatment Plant, which will also drive through today. And that is owned by a Joint Powers authority formed by local agencies such as Upland Chino, Chino Hills, Monte Vista Water District, and the city of Ontario. Sorry, is that me? I have the ring at home so I'm always sensitive my ringing. So we'll talk a little bit about that because supplemental water in the basin is imported water, which is imported here, and it's also recycled water. So after the water has flown, has been used, created as wastewater and then treated, it becomes recycled water, which is then reused in the basin. So those two types of supplemental waters, imported water and recycled water, the imported water from this line can also be used in raw form. It can be released through another connection down San Antonio Creek channel and going to recharge basins, which we're also going to visit today.

(00:28:48):

So imported water can become treated and used in the basin. It can become treated and recharged in the basin through wells, or it can be untreated and recharged in the basin through ponds. So we'll visit all those facilities. Today we are approximately, let's see, here's the airport and here is Archibald. We're approximately here right now. So our tour, we're going to go up, we're hoping for a little more clear morning, but we're going to go up at the 80 Oneda Preserve. You ever been

background audio 1 (00:29:22):

There? I have. I've hiked that trail many times. Perfect.

Peter Kavounas (00:29:25):

It falls. So if we don't get a great view today, next time you hike it, you can look back and you'll get a better view of the basin. But the idea is to look from there and look and orient you to the Harpa Hills.

The Harpa Hills over here that are sort of one of the boundaries of the basin. From there you can see the La Sierra Hills in the distance you would be able to see the Santa Ana River. We're going to go to the Lloyd Michael water treatment plant. We're going to go to the San Vein recharge basins. We're going to visit a piece of agricultural land that is farmed by Galliano for grapes. And this year we have an experimental recharge project taking place where we're actually using agricultural land to recharge the basin. It's not been done here before.

background audio 1 (00:30:18):

So at the top of the San Main recharge basin, there's IMP parted water coming in here. Correct. Your big pipe

Peter Kavounas (00:30:25):

Imported. Where does that

background audio 1 (00:30:26):

Water come from? Is that from Silverwood or

Peter Kavounas (00:30:29):

Rialto? It would come from Rialto. Rialto, yeah. Okay. But

background audio 3 (00:30:32):

That does come

Peter Kavounas (00:30:33):

From Silverwood, which comes from Silverwood.

background audio 3 (00:30:34):

Okay. So it comes down from Silverwood through an underground pipeline, I'm assuming, and then they pump it over to the top of the SAN so that it recharges and puts back down.

Peter Kavounas (00:30:47):

Yes. We also have access to recycled water there. We also have access to local storm water there and you'll see where the local stormwater comes in at a couple of places.

(00:31:00):

So we are going to visit these facilities here and then we're going to catch the two 10 and drive to the AGU DJOs water treatment plant. That's the water facilities authority, water treatment plant. And so you'll have an orientation to what the treatment PLAs look like for the imported water. From there, we're going to travel south and we're going to look at an injection. Well, it's owned by Monte Vista Water District. It's the typical Well, so the reason we chose that is because when you look at that, you will see what a typical well looks like. In this case it can inject water as well as pump water. So it's a two for one. Then we're going to visit the Montclair basins owned by the Conservation District, which is another piece of the history of Chino Basin. The conservation district was formed by the Chino Valley Chino Basin Protective Association, which was formed by farmers who were thinking forward, how are

we going to keep this basin working for us? They formed the conservation district to recharge local water and they formed Chino Basin Municipal Water District to bring in imported

background audio 3 (00:32:09):

Water. How long ago was that?

Peter Kavounas (00:32:11):

Fifties.

(00:32:13):

Fifties. Before population went. Kaboom. Very insightful. The farmers. So we'll visit that there and then we will wind our way down. We're going to drive through the GE Flatiron treatment plant, which it used to be an old GE facility that made flatirons for iron clothes. Their chromium, platting and solvent use created a plume. So we're going to drive by and look and see what a onsite cleanup facility looks like. It's a quick drive-by and then we're drive through the Ely basins and from there we're going to make it into the agricultural area. What is, in the past you had most of the area was agricultural. Now the agricultural area is basically south of the 60 freeway.

background audio 3 (00:33:06):

It was interesting that you said that was kind of forward thinking of them to start that, but commercial agriculture start like that a hundred years before that. So it took a hundred years for them to start thinking, oh, maybe we should start preserving this. Yeah, it seems a little light to me.

Peter Kavounas (00:33:22):

Well, okay. In terms of,

background audio 3 (00:33:26):

I'm going to argue with you. Just bring that point out that generally we're kind of behind the eight ball in looking forward.

Peter Kavounas (00:33:38):

This, the way I see it in my mind is that at that time they started seeing that their groundwater production wasn't sustainable. And so they started shifting their thinking to how are we going to have water resources in the

background audio 3 (00:33:52):

Area? So they knew the water table was going down and it was not replenishing just going down, down.

Peter Kavounas (00:33:58):

And it took another 20 years from there to get to a stipulation. That became the court order for the basin.

(00:34:07):

So we're going to continue going down and we're going to go down through ag area, we're going to get to a yellow park. And at that point we'll be talking a little bit more about the monitoring of the basin, the

sustainable management of the basin. We're going to look at the extensometer, which is a state-of-the-art facility for measuring land subsidence. And then after lunch from there, we're going to transition and look at the treatment facilities both from the Chino Desal authority as well as the regional plant. Number five, which is a wastewater, the largest wastewater treatment plant that I u a has.

background audio 3 (00:34:48):

So where, where's the salt coming from? Is that from agricultural

Peter Kavounas (00:34:51):

Use? Salt is in everything. It's in every glass of water that we import from up north. It's ubiquitous in the environment. Salt management is the biggest challenge for a groundwater basin because salt continues to accumulate. Salt is something that the regional Water Quality Control Board regulates. And so how a basin manages with salt becomes the subject of a salt nutrient management plan. In our case, we'll talk a little more about the solution for salt management. In this basin was to build two treatment plants, the C D A treatment plants and a picket fence of about 30 wells. That pump water that is very high in t d s, primarily in the agricultural area. That is a major contributor, but it is t d s total dissolved solids salt is in everything.

background audio 3 (00:35:50):

How do they get that out? Just giant membranes or something?

Peter Kavounas (00:35:53):

Yes. We'll drive through the two treatment plants so you get an idea. There's membrane treatment to get that out. We'll talk a lot about salt today. We'll talk a lot about sludge today. That is the stuff that is sort of the byproduct of all that and we don't really think about it firsthand, but it is a real concern for water management. And then we'll dip into Prada basin. We'll a look at the, we'll get close to the river, their riparian habitat. We'll look at one of the monitoring walls there. That is part of our monitoring scheme. We'll take a quick drive through C D A two and we'll be back here. So you'll have seen a little bit about imported water. You'll have seen a little bit about recycling, a little bit about groundwater. And Andy, do you want to maybe give some thoughts about the sustainable management of the basin? Just a brief introduction to the O B M P and the program elements? Sure.

background audio 5 (00:36:49):

So you heard me mention O B M P and I'm sure that term is familiar with you, but it's our groundwater sustainability plan that was formed in 2000 years before the Sustainable Groundwater Management Act, but very similar in a lot of ways is what the state's trying to implement now through that law. And it touches on recharge. There's a whole program element on recharge. There's a program element on subsidence management. There's a program element on salt management. There's a couple of program elements on storage on how to manage the storage in the basin and conduct storage and recovery programs in the basin. So we store imported and storm waters when they're really available so that we can use them through drought period. So that's another management strategy to sustainably manage the piece. And so we'll be touching on a lot of that as we go through.

background audio 3 (00:37:52):

And are the desal, I've spoken other opponents like sewage and I chemicals or is that done separately?

background audio 5 (00:38:00):

The desalt? Yeah. What do they remove?

background audio 3 (00:38:04):

Well, other than the salt. Yeah. Are they removing other pollutants?

background audio 5 (00:38:09):

They remove everything. Yeah, because the reverse osmosis process is pretty much making pure H two O and everything else is left behind so they can remove everything. And in fact, no sewage is groundwater that pumping.

Peter Kavounas (00:38:25):

So

background audio 3 (00:38:27):

This is groundwater,

Peter Kavounas (00:38:28):

Correct? Yeah, it is groundwater. What

background audio 3 (00:38:30):

If every sewage pollutants from groundwater because of septic systems, but it's not removing a sludge or a sewage per se. It might be remnants, so to speak from the contamination, but it's groundwater pumping. Alright, but wouldn't that have perchlorates and other chemical pollutions

Peter Kavounas (00:38:47):

Too? Yes. Yes. So there are eight plumes of industrial pollution in Chino Basin. The largest one is emanating south of the airport and it's pretty much flowing with groundwater.

background audio 3 (00:39:03):

And what's that plume?

Peter Kavounas (00:39:05):

That is like everything else has history. It was water that was discharged from a wastewater treatment plant. So there was industrial discharge that went to that treatment plant that made it through the treatment plant and went into recharge ponds south of the treatment plant seeped into the ground and it's now TCEs PCEs primarily, but also other chlorate and other things in it. So

background audio 3 (00:39:35):

It wasn't caused by the airport?

Peter Kavounas (00:39:37):

No, no. It was not caused by the airport. Right. It just happened to be It was caused by the airport? No, it was just south of location-wise south of the airport. But the direction of the plume was headed straight for that picket fence wells for the C D A. So the C d A retooled the treatment process increased the treatment processes available to also remove the industrial contaminants found in that plume the same thing. So we have two C D a plants, one on either side and the wells run in between. There is a plume that is associated with a Chino airport and there is contamination that did come from there. And that is being captured and treated at CDA one again with an enhancement of the treatment processes there.

background audio 3 (00:40:24):

And what's that from? Like dumping fuel and

Peter Kavounas (00:40:27):

Oil? Dumping fuel, dumping oil and firefighting foam, which has a lot of bad things in it. Good.

background audio 3 (00:40:35):

Mr. SRA said those are World War ii Korean War types of practices when everybody just dumps stuff in ground.

Peter Kavounas (00:40:43):

Yes,

background audio 1 (00:40:43):

They wash their

background audio 3 (00:40:44):

Engines and

background audio 1 (00:40:45):

Stuff. For some reason, your Honor runs down the hill and so it came into the dairy area and there was a tremendous loss of life over a period of decades which caused cancer. But it wasn't manure, it was a nitrates. It was what came from manmade material.

background audio 3 (00:41:09):

So just to touch on, in the old days, we just kind of dumped everything in Grant, do you run any education programs out of here for schools?

Peter Kavounas (00:41:17):

So the conservation district does that is they have tremendous emphasis on education for water use and environmental protection. But that's not what this organization was created for. You asked the question about septic. This area here has this portion of the basin is still on septic. The rest has been pretty much Seward.

background audio 3 (00:41:46):

That's mostly unincorporated

Peter Kavounas (00:41:47):

Area, unincorporated county, okay. Yeah, some red county it's, it's actually in the city of Fontana for the most part. But outside of that, everything else is Seward and the collection of wastewater and treatment of wastewater is handled by Inland Empire Utilities Agency, I E U A. They run the regional plants that there's four of them that collect the water. So what happens to that water is it either gets pumped and used for recycled direct use or recharged to the basin or it's released to the Santa Ana River and used by Orange County for their purposes.

background audio 3 (00:42:28):

So is that agency trying to get rid of the septics and try to replace it in their lines?

Peter Kavounas (00:42:37):

As far as I know, a few years ago they approached the city of Fontana and asked Can we convert the capital expense? Apparently is pretty large. And so that's not going any further. But it would be good to be able to do that for the residents. It's an expense they would have to pay for their lateral from the sewer to their home and they'd have to pay a service charge. Whereas now they just have a septic tank and they don't have to worry about it. So it becomes what do those customers want?

background audio 3 (00:43:10):

There's a lot of moving parts to what you guys do.

Peter Kavounas (00:43:13):

Yes, for sure. Yeah. And we just look at one small piece of it. You look at what Chris does and he looks at another piece of it and you look at what IU eight does, it's another piece of it and it's a remarkable assembly of interest and management pieces to actually get water to people

background audio 3 (00:43:35):

You that pipe all that pipe that they would've to construction there. Thumbnail number is a million dollars a mile to pipe. So it's a lot of costs, a lot of infrastructure. The great cities of antiquity were not built by wars. They were built by government who figured out a way to get fresh water to their people for help and economic growth.

background audio 1 (00:44:01):

We had brilliant engineers were so blessed I u A when that was formed and their treatment facilities are state of the art and run by really brilliant, brilliant people. Retired now of course are gone. But the treatment was just is amazing. And you'll find that today as we travel, it's not all agriculture. Some of it comes from us.

Peter Kavounas (00:44:32):

So anything else Andy, for orientation? Well,

background audio 5 (00:44:38):

Yeah, you asked a fundamental question about salt accumulation and I want to just give you a little primer on it that like Peter said, there's going to be salt in water and when we pump it out of the ground

and we apply it to the land surface, the plants use the water but they don't use all the salt, they just use a tiny bit of it. And some of that water that's applied to the ground surface, we'll go past the root zone in a more highly concentrated form because the plants have used up that water now return to the aquifer system. That is a very important part of our water budget for the basin. But over time, that process of that concentrated return flow and then pumping it back out and reapplying it to the land surface again, still new.

Peter Kavounas (00:45:32):

That's a close.

background audio 5 (00:45:33):

And we've lowered groundwater levels in this space and so we don't have as much groundwater outflows as same on a river anymore. So we set up this kind of closed system and that's the reason why salts have accumulated in the basin when we've applied fertilizers that adds to it as well, including the nutrient loads. That's just an inherent process that every groundwater basin has to deal with. This basin here has been on the forefront of salt nutrient management for a long time and it's one of the models, in my opinion, on how to deal with salt nutrient management when the de salters are a key part of that. But recharging, import, clean, imported water, clean storm water is also a big part of that. We'll see a lot of our salt nutrient management strategies as we move through the tour today.

Peter Kavounas (00:46:34):

Yeah, the des salters are something that of course had to be approved by the regulator, the regional Water Quality Control Board, and it was just an absolutely cutting edge way to manage a basin. Nowhere else in California has a basin been allowed to in exchange for the investment in 30 wells and two treatment plants that are here and remove salt and they keep salty water from going to the river into Orange County. So in exchange for that investment, we were allowed to put in recycled water to good use upstream. Otherwise the salt accumulation in the basin was so high that we would not be allowed to use recycled water. So the resource would have to be wasted. This regulatory move to allow controlling groundwater flow and extracting salt is something that it's only happened in this regional board, in this basin in California.

background audio 3 (00:47:42):

Really?

Peter Kavounas (00:47:43):

Yeah. So you'll see that today and it's something that certainly before my time, it's before Andy's time, but it is something that we all live and manage. It's something that there's a strong financial commitment by all the agencies. There's heavy reporting, there's heavy monitoring, and it's something that the region should be very proud of. One final note before we get on the van, you might ask what happens to all that salt you remove? And that goes to another investment that was made in the entire watershed called the Santa Ana River interceptor, which is a brine line. That too doesn't, I don't know of any other place that has a brine line. The brine line was

background audio 3 (00:48:33):

Lifting batteries out of it.

Peter Kavounas (00:48:36):

So the brine line begins up here and collects and goes out to the ocean and collect super concentrated salty water. So in our case, it allows us to desalt the basin and preserve the resource Other places you have food industry, you have linen industries, you have tech industries that wouldn't have the ability to do their business if they didn't have the ability to get rid of the high t d s, the high salt water. So they have that brine line and they either get a direct connection or they go to connection points where they can dump it.

background audio 3 (00:49:13):

So where is that concentrated brine going? What prevents people from putting desalinization plants all along the coast? Because they don't dunno what to do with that.

Peter Kavounas (00:49:22):

It goes down to the coast and Orange County takes the brine and takes the brine out of the super concentrated brine water. The brine eventually makes it back to the ocean where it started millennia ago,

background audio 5 (00:49:37):

But they're starting to make clean drinking water out of it now too. So they're treating it, they're softer facilities down there.

background audio 1 (00:49:48):

The technologies even for agriculture, it's just amazing. I've watched three generations and good things are happening and they continue to happen on how we manage the salt, how we collect the salt, how we do different things with those, let's say methane and other things that come from.

Peter Kavounas (00:50:16):

So with that as an intro, I think we can hop in the band unless you have any other questions at this point.

background audio 3 (00:50:22):

I just need to release some nitrates.

Peter Kavounas (00:50:24):

Very good. Chris euphemism. Chris, are you going that way as well then? Can I ask you to use Well you'll have to down the hall and to your right.

background audio 1 (00:50:37):

Two.

Peter Kavounas (00:50:38):

What's that? There's two now. There's two now. I just realized that. Yeah,

background audio 1 (00:50:43):

Allegedly take any of the size to the

Peter Kavounas (00:50:46):

Van. Let's see. I'm going to make sure that everybody knows we should take 'em to the van. If they don't want them, we'll bring 'em to the van. Thank you. And I'll remember about the photos. Don't

background audio 1 (00:50:58):

Fiddle with

Peter Kavounas (00:50:59):

Your No, no, I know. I'm just checking to make sure everybody's is red and flashing red. So we'll going to load

background audio 1 (00:51:03):

These and

Peter Kavounas (00:51:04):

I'll be back. Okay, thank you Alonso.

background audio 1 (00:51:08):

You're the only one that messed up during the practice

Peter Kavounas (00:51:11):

Round. I know, I know. My mercy is not here today. It's not going to interfere. You're flashing. You're good. The alarm that went off, my wife's birthday's coming up and I have an alarm every Monday, Wednesday and Friday to remind me of all the planning, the gift purchase and everything else I need to do. Danny's turning 60

background audio 1 (00:52:01):

Bakersfield. They're all there now.

Peter Kavounas (00:52:14):

Chris has got a packet.

background audio 1 (00:52:17):

Have a question.

Peter Kavounas (00:52:37):

I'm going to leave my marker here.

background audio 1 (00:52:42):

You know

Peter Kavounas (00:52:48):

It's my marker though. You can't, can't steal it.

background audio 1 (00:53:06):

Sunglasses Peter it.

Peter Kavounas (00:53:25):

No, we're still doing. Yeah, all that's good. So thanks Kelly. Thanks for everything Judge. You have all your material. I

background audio 6 (00:53:32):

Love this map. I love maps too.

Peter Kavounas (00:53:34):

Oh good. I get to keep this right? Yes you do. Yes you do. Let's see. Yeah, let's just bring 'em in case anybody has them. This map comes from, you'll find that everything we're handing you today has been filed with the court before. So you'll find the same map in tab one and then you'll find in the back you'll find the court filing that it came with. We're trying to be extremely proper with material that we present to you, but we have an annual report that we produce every year. And this coming January, you're also going to get a report that we produce that's called the State of the Basin Report Coffee Table Style. You're in the front

background audio 7 (00:54:17):

Your Honor.

Peter Kavounas (00:54:18):

Yes. Coffee table style. It has an excellent collection of maps and highly summarized information and text format is the best way to learn about the basin. The first state of the basin report was done in the year 2000 when the O B M P was created and then it's been done every two years ever since. So it is like these slices of time to show you how the basin changes and what the new challenges are. I do have a logistical question for you. Sure. We would, for our annual report, we have photographs. We would like to take photographs today from the tour. Are you okay with being in some of them? Oh absolutely. Okay, very good. Thank you. So we'll do that. And is that okay if they're used in the annual report?

background audio 6 (00:55:07):

Absolutely. Can you email me the

Peter Kavounas (00:55:10):

Photos? Of course. Yeah, of course. Yeah, absolutely. Very good, thank you. Alright, so do we have everyone And we have,

background audio 7 (00:55:21):

We've got more

Peter Kavounas (00:55:22):

Room, we've got room, we have drinks there for anybody that needs some and we're ready to go. Please watch your knee, Bob. Off we go.

background audio 7 (00:55:49):

Sandy,

background audio 8 (00:55:49):

Did you say that you did some work during the Salton Sea or we're familiar

background audio 9 (00:55:53):

With that? We are right now developing a salt and nutrient management plan for the Coachella Valley, which is a really interesting situation. The regional board there is very concerned about the recharge of Colorado River Water, which has a higher salt concentration than the state water project. The T D SS concentrations in the state water project are 200 to 300 milligrams per liter, which is really high quality water. But Colorado River water is more on the 600 700 milligram per liter concentration and that's above the 500 milligram per liter secondary M C L for the state of California. And so the regional board is really concerned about that recharge of the Colorado River Water, which is a really important resource for the Coachella Valley because it sustains their groundwater levels there and they are highly dependent on groundwater out there. So it's an interesting problem. But yeah, so that's what we're doing out

background audio 6 (00:56:59):

There. Yeah, in fact that's probably the only way they could farm is because they had that underwater,

background audio 9 (00:57:06):

The

background audio 6 (00:57:06):

Aquifer new storage facility, natural storage facility that has been holding water for eons and didn't really start to probably dipping until we got there.

(00:57:20):

It's interesting if you've ever gone to Salton Sea, obviously it's a lot smaller than what dam broke back around the 20th century. But as you look to the right, as you're going down 86 South, as you look to the left, you have salt sea and then to the right you have the mountains that kind of quarter it. There's what looks like a little bathtub, about a hundred feet up rock ian. And that's like an ancient shoreline. Originally the Sea Cortez came all the way in where the Salt Sea is at one time and there are area where the drawings of ships Spanish gallions and I wonder how did they see Spanish? I know came one time, which is kind.

background audio 9 (00:58:27):

Yeah, the history of it is really interesting.

background audio 6 (00:58:30):

Very, very interesting. We usually take four or five trips here in San Lupe and Baja, so we pass that Salton Sea all the time. We stopped one time just to check it out because it's kind of an interesting story of what had gone wrong, just how it was created, how it was developed, very kind of a hot spot for a while. Really sustainable. Very D a huge issue there. Now you just have agricultural one-off into the Salton sea, which obviously includes fish

background audio 9 (00:59:35):

Practically nothing

background audio 6 (00:59:36):

Still.

background audio 9 (00:59:38):

So

background audio 6 (00:59:38):

I don't know like AAP level of the diod.

background audio 9 (00:59:52):

You ever spend time as a Borrego?

background audio 6 (00:59:56):

Not really. Cab there was, but most of the time just passing through. Occasionally on our way back, we'll go through Anzo Borrego. It's longer but it's very beautiful drive. And if we're coming back when it's a holiday or there's, they have that concert out in Palm Springs, the traffic is just a nightmare.

Peter Kavounas (01:00:23):

Yeah,

background audio 6 (01:00:24):

We'll just go through the end of where you go.

Peter Kavounas (01:00:28):

That area is changing quite a bit. Also because of the Sustainable Groundwater Management Act, they're going to back off their pumping and consequently the farming that's happening is going to

background audio 9 (01:00:41):

Change to follow a lot of land.

Peter Kavounas (01:00:46):

So as we're making our way toward the mountains, which you can't see, but you know they're there. We have a moment to maybe, Andy, can you describe a little bit, how does the land change over time for the shift from ag to what it is today, which is residential, commercial, industrial? How does that affect water in the basin?

background audio 9 (01:01:13):

Yeah, so we were talking a little bit about it back in the office where back when all this land was originally agricultural, there was a lot of irrigated there, irrigated lands and the irrigation methods a lot of times were flooding the fields, which would recharge a lot of recharge as land use converts into urban land uses those irrigation practices were still irrigating but in a more efficient way. But

background audio 6 (01:01:52):

What do we do? Yeah, we concrete everything over

background audio 9 (01:01:55):

Concrete, everything up.

background audio 6 (01:01:56):

And what do we do to avoid floods? Concrete channels,

background audio 9 (01:02:02):

Concrete channels, nothing.

background audio 6 (01:02:04):

Then recharge because help create our open

background audio 9 (01:02:08):

Problem. You're right on it. The

background audio 6 (01:02:09):

First thing might do is

background audio 9 (01:02:11):

Get the water

background audio 6 (01:02:12):

Out possible,

background audio 9 (01:02:14):

Protect the infrastructure, but at the same time that reduced the stormwater recharge that would occur and then the return flow from outdoor irrigation would be reduced. Now as we're entering into this period of water conservation, which is good, we need to conserve water, but that means that we're even applying less water outside. And so the consequence that people don't typically think about is the reduced return flows to the aquifer system. And so what you're probably going to see in past efforts where we reevaluate our safe yield in the basin that's been coming down and a big part of that reason is coming down is because of the reduced return flows because of this land use conversion from agriculture to urban land uses

background audio 6 (01:03:14):

The LA River attempts to try to ize it. Great. Have a waterway park picnic, do whatever and kind of take out those concrete channels and just the water cul that on fire. They did it for reason. Right. And it's lost life flood, but you always have that tension. Yeah, deconstructing the infrastructure.

background audio 9 (01:04:02):

You look off to your right. That's one of our recharge basins. Now

background audio 6 (01:04:04):

Which one is that?

background audio 9 (01:04:06):

Is the lower day basin

Peter Kavounas (01:04:10):

Stay great right

background audio 9 (01:04:11):

There. We'll

Peter Kavounas (01:04:12):

Talk a lot about recharge basins. This is not a recharge basin that people said, oh we need recharge. Let's build a recharge basin. These are for the most part basins that were billed for flood control purposes. Along with let's concrete line, the channels is the concept that you build a little storage off to the side in case the storm is still too big. So you push the water off to the side. Now in the early two thousands it's really big storms for big storms, that

background audio 6 (01:04:44):

Kind of safety belt,

Peter Kavounas (01:04:45):

It's called the retention basin. So it retains stormwater until you can manage it through the channel and shoo it out of the area.

(01:04:54):

So in the early two thousands, agencies that started focusing on managing the basin better led by I U a, had an agreement with the flood control district, San Bernardino County Flood Control district, the conservation district, which also owns some recharge basins and water master. It's the four party agreement. And that laid out the terms for how those basins are to be used as retention basins during the storm, but recharge basins the rest of the time. So then I u a, its member agencies and all the parties, the stakeholders to the judgment agreed to pay for the operation and maintenance of the basins for recharge during normal times. And that way they get the benefit of that because as you know the area is built out. There are very limited opportunities, if any, to build a dedicated recharge facility. Recharge facilities of the future are going to be wells that inject water in the ground as opposed to these open pits that water can simply percolate. Land is just too expensive for that. Now

background audio 6 (01:06:14):

I assume you can probably inject any U except bedrock.

Peter Kavounas (01:06:19):

Yes. As long as it's the right soil. Not clays, but sands and gravels. You can inject and you can inject at different depths and achieve different results by injecting at different depths. There are considerations of water quality, there are considerations of land subsidence. All those things go into the design of the location of injection. The recharge basins are pretty much where the drainage happens to be. The injection wells can be put in different places to accomplish different things.

background audio 6 (01:07:00):

So you have to rely the natural.

Peter Kavounas (01:07:03):

Exactly. Yeah. And you'll see that. You'll see that with sense vein. Sense vein is right off of drainage. And the Montclair basins will see they're right off of drainage. They're just right next to the creek. So we we're going to go to Rwanda Preserve. Our thought was that we would have a nice clear day and we could look at the basin. But as I'm seeing, we have somewhat limited visibility. So we're going to stop there and see if it's worth getting out of the van or not.

background audio 6 (01:07:51):

How long has the awanda treatment plant been there?

Peter Kavounas (01:07:58):

The awanda treatment plant?

background audio 6 (01:08:00):

One off. I thought you said we were going to be visiting that one I believe.

Peter Kavounas (01:08:12):

Let's see, we're going to see Lloyd. Michael. Oh, Lloyd Michael. Yeah, yeah, Lloyd Michael was built in 82. So Lloyd Michael was built in 82 and it was expanded in 2015. Part of the way of the water industry is it is water districts are basically a human health organization. Yes, they provide water, but it is something that affects human health. So as technology evolves, our ability to understand what harms human health evolves, our ability to detect it evolves. And then our regulation of it evolves. So you take a water treatment plant like Lloyd Michael built in 1982. It had a great at the time treatment process by today's standards that's primitive because it has to remove more things. So when we go through there, you'll see the original treatment plant and then the 2015 expansion that added treatment trains that are more sophisticated, more energy intensive, more chemical intensive. And that's the story of every treatment plant you're going to see. Whether it's potable water or whether it's wastewater. You have an initial design and then you have additional treatment process that goes on. The c D A plants are like that. They were not built to handle industrial pollution, but lo and behold, industrial pollution comes along. So they get expanded by additional treatment train.

(01:09:49):

That by the way, is a Cucamonga Valley Water District tank right there. Right there. It receives water from the treatment plant. It water is pumped up there and then it's used to serve the area below and it maintains constant pressure at the homes that it serves.

background audio 6 (01:10:09):

And where in this do you they trap of water coming from the falls.

Peter Kavounas (01:10:16):

It goes into the treatment plant that we'll see. Yes.

background audio 6 (01:10:19):

Deloitte, Michaels, Lloyd

Peter Kavounas (01:10:20):

Michaels. Yeah.

background audio 6 (01:10:25):

You live nearby here? Yeah. In fact, my house sits on the incident knock fire. Okay. Right on the quarter of it. And I can see the import water being pumped out from my back balcony. That's why I know that it's there.

Peter Kavounas (01:10:43):

Yes.

background audio 6 (01:10:43):

Interesting that when they turn it on, when turn it off, try water in there during the fire season. Because many times when we have fires, they have helicopters come down and will suck water out of there helicopter, fire, fire and they'll fly. If you're standing out on the balcony, you'll get wet because they're still dripping as they're pulling that water out.

Peter Kavounas (01:11:13):

Yeah. So let's step outside here for a moment. Please watch your step, Bob. Let me know if you need help. Got it. Got it. Good. So we were hoping for a little more clear day. Andy can give us a broad brush geology orientation from here. Although you are familiar with the area, but still good to talk through it.

background audio 9 (01:11:51):

Sure. Yeah. We can't see much here, but you can see the Chino plane out here. But from a tectonic perspective, a little geology lesson here is that this crustal block here, take pictures.

Peter Kavounas (01:12:07):

He said it's okay for pictures. Take I back over. Take picture

background audio 9 (01:12:11):

Design that we're generally sitting on, but so this crestal block being depressed and pressed underneath this mountain range, which is being thrust upwards. And so weathering and erosion up here sheds the sediments during floods out here to be deposited on this subsident basin here. And so the sediments build up, the water percolates in, and this becomes a groundwater reservoir, which

background audio 11 (01:12:42):

Made a great, great growing region

background audio 9 (01:12:46):

Through the soil. Yeah, very sandy soil. We got very coarse grain sediments, especially up here in the northern part of the basin. We basically have the Rialto Colton fault, which is a splay of the San Andreas fault, which borders the San Bernardino Mountains over there. These basins over here, we refer to them as the San Bernardino groundwater basins. And so the Rialto Colton fault is a strike slip fault, just like the San Andreas. And it provides a groundwater barrier between the San Bernardino basins and the Chino base.

background audio 11 (01:13:26):

So that's what the fault lines do. They provide that area and that's why it, yeah, mapped

background audio 9 (01:13:30):

Out that way. Right. The fault movement grinds up the sediment over time and creates a fault gouge that then inhibits the flow of groundwater because it's fine-grained along that fault boundary. It can also, groundwater flows through sand and gravel beds. And so when you offset sand and gravel beds, that can also interrupt the flow of groundwater. So the fault really can become a very good barrier to groundwater flow. And so water levels over here in the Rialto Colton Basin are much higher than in the Chino Basin. There's a little bit of leakage across the fault, and we try to estimate that in our groundwater flow models as to how much that is, but it's a little bit of an unknown. But we know that that is a process. It does happen.

background audio 6 (01:14:25):

So this is a giant base and this is like one of the largest in the state,

background audio 9 (01:14:31):

Not in the state. When you get into the Central Valley, I mean that is a gigantic groundwater basin, but for this area here, the Chino Basin is very large. There's something called the Bunker Hill Basin, which runs along the foothills of the San Bernardino Mountains over here, another very large groundwater basin. Orange County is a very large groundwater basin as well.

Peter Kavounas (01:14:56):

It's

background audio 9 (01:14:57):

Very central and we've got all these imported water pipelines coming through, so it could really function as a hub for regional water projects.

background audio 6 (01:15:08):

So where does the water? So the water for the Cuca Manga Valley Water District comes from the imported water, the afar, groundwater. And where else are they getting water?

background audio 9 (01:15:21):

So surface water comes out of the mountains. There's also a groundwater basin right here called the Cucamonga Basin. So this fault here that runs out in front of us, we're actually up here in the Cucamonga Basin looking out here. But this Cucamonga basin they pump out of. And then again, a good barrier to groundwater flow here, this Red Hill fault. And so water can spill underground, can spill over this fault and recharge the Chino Basin. But again, it's an impediment to groundwater flow. But they pump out of this basin. They pump out of the Chino Basin, they've got some surface water, and then they got their imported water

Peter Kavounas (01:16:04):

And they get recycled water pumped up as well.

background audio 6 (01:16:08):

And how much of that do they rely on water from their site as opposed to

Peter Kavounas (01:16:15):

About half and half? Half and

background audio 6 (01:16:17):

Half?

Peter Kavounas (01:16:18):

Yeah. The entire region relies on the Chino Basin itself for about 60% of its

background audio 6 (01:16:24):

Demand. So most of the water that we get is water that's been recharged to dock

Peter Kavounas (01:16:29):

Fire, right. Whether it's local, native or whether it's recycled and recharged or imported, that has trickled back in groundwater is about 60% and it's a lot cheaper than imported and it's a lot more reliable than imported.

background audio 6 (01:16:49):

That's quite a bit.

Peter Kavounas (01:16:50):

It is. And hence the significance of the basin. The significance of the management of the basin. And

background audio 9 (01:17:00):

On these maps, see the green, this crystalline bedrock, so granites and metamorphic rocks and the gray areas and in the pink areas are the sediments that have been shed off these mountain fronts that provide the groundwater reservoir. These are sedimentary bedrock formations that are much younger. These older crystal bedrocks, sandstones, silt stones, clays, shales, all of these rocks that you see that we're calling bedrock, they form the bottom of our aquifer here in these younger sediments that have been deposited on top. That's our groundwater reservoir. Not to say that bedrock doesn't have groundwater, but it's usually in fractures and it's not as productive. Try to drill a well into bedrock, but you can get 3000 gallons per minute out of the unconsolidated sediments that are saturated here. So Ontario has some of the biggest wells right in the center. So does Cucamonga Valley Water

Peter Kavounas (01:18:11):

District and Fontana further

background audio 9 (01:18:13):

To the east over here. Pomona, Monte Vista Water District Chino.

Peter Kavounas (01:18:21):

So we were hoping to look south and show you Harpa Hills. Santa Ana River. Santa Ana River. It was visible when we did a trial run. It's there. It's there, but it does sound like you do come up here. Next time you're up here, if you take a look, it'll hopefully make a little more sense. So let's pile into the van again. We're going to go to Lloyd Michael. So you have this Rialto feeder. It's running right in front of us and it's running. That's the underground pipe. That's the underground.

background audio 9 (01:18:54):

How big is that pipe? How big?

Peter Kavounas (01:18:56):

How big is Rialto? Several. 60. 72. Yeah. 72 inch at least. Yeah,

background audio 9 (01:19:03):

That's giant. A lot of water.

Peter Kavounas (01:19:06):

Lot of water. A lot of

background audio 9 (01:19:07):

Water that goes down. They have to make plans what they're going to do.

Peter Kavounas (01:19:12):

It goes down from maintenance. Sometimes

background audio 9 (01:19:14):

It does. There could be emergencies, earthquake or something like that. So the groundwater basin then becomes a very important resource as an alternative water supply if ever we're cut off from the imported water supplies. Ready?

Peter Kavounas (01:19:35):

Ready? Okay,

background audio 9 (01:19:52):

I got it. Thank you, sir. You're back there. Sorry, I missed it.

background audio 7 (01:20:06):

You. It is a big van.

Peter Kavounas (01:20:13):

I know. It is a big van. So we are at the highest point. We're going to be all day today, right here and from now on all down here. It's all downhill from here. That's right. Exactly. So this is a good

background audio 9 (01:20:38):

Hike from here.

background audio 6 (01:20:40):

It's a pretty good hike. I don't do a lot of hiking, but by the time I get to the top I'm pretty tired. Plus the top. It's not a real, very safe hike because there's a lot of boulders about this size. They're really too big to walk over and too many to walk around so you can very easy to break an ankle.

Peter Kavounas (01:21:03):

Ankle turners. Yes,

background audio 6 (01:21:05):

But it's very popular on the weekends. In fact, you can't park here on the weekends unless you get here early and they do have enforcement here, so you can't just kind of make your own spot. But it's a good high. Kids really never hiked the ball. Need low ball and it seems like it flows year round matter if you've had rain or not. I know if it's coming out of grand fissures or what. Yes,

Peter Kavounas (01:21:38):

Yes. This year it's going to flow along probably all along.

background audio 10 (01:21:45):

You

background audio 6 (01:21:45):

Can hike back in creek.

background audio 10 (01:21:49):

Yeah.

background audio 6 (01:21:50):

Really this cool area. It's always a few green summer,

background audio 9 (01:22:08):

So those waters that are in those fractures in the bedrock, we are up high and it is flowing downhill and in the subsurface it can recharge groundwater basins in the subsurface, we call that mountain front recharge, and that's something we simulate in our groundwater flow models too, is outsourcing.

background audio 6 (01:22:32):

We actually do the height. You can see where above probably the people that first had their orchards out here or whatever had started to divert water off that channel in very crude concrete iron channels where they're diverting the water off.

Peter Kavounas (01:22:57):

Stick a pipe in. Right,

background audio 6 (01:22:58):

Exactly.

Peter Kavounas (01:22:59):

Bring the water out as far as you can.

background audio 6 (01:23:02):

None of 'em are functional now when you can see them just sitting there.

background audio 9 (01:23:07):

Yeah. The history is really interesting. The surface water diversions that took place back in the early 20th century, late 19th century, it was mostly surface water diversions that were supplying the agricultural fields that we're developing. Then eventually with the advent of the vertical turbine pump, after they had diverted most of the surface water, they started going to the groundwater because they could punch holes in and water would flow in artesian ways, and then they started pumping. Once the artesian water went away, they started pumping and eventually all the decline in groundwater levels in the groundwater basin that led to the adjudication. That whole history is extremely

background audio 6 (01:23:57):

Interesting. Yeah, a lot of people don't know that this is one of the largest great growing regions in the world back in the twenties and through the century. In fact, Pennsylvania, the basin is named after a wine grower. And I didn't know that Agricul was huge in this area, and you wouldn't know it that it was once of the largest migrant region, although United States just a few remnant patches now, unfortunately, it's kind of like where I grew up in Norwalk. Norwalk was all dairy.

Peter Kavounas (01:24:41):

Hold on one second. Excuse me. We just crossed over the Rialto feed. That alignment right here is Rialto Feeder. Okay. And the treatment plants right here, right next to it.

background audio 6 (01:24:51):

This Lloyd Michael,

Peter Kavounas (01:24:51):

This Lloyd Michael. Have you read Tangled Vines?

background audio 6 (01:24:55):

I have Red Vines, yes. Very

Peter Kavounas (01:24:57):

Fascinating, interesting

background audio 6 (01:24:58):

Local history book. Really kind of scandalous with the murder and everything. Yes. But it's very interesting to read if you're interested in the history of this area. I don't think I've ever met anyone else who's read it.

Peter Kavounas (01:25:15):

Well for us it's a part of our culture at Water Master. It's part of our culture.

background audio 6 (01:25:20):

Well, yeah, I guess it's kind be a natural.

Peter Kavounas (01:25:22):

But the ag pool is a very big part of our lives. And the grape growers, Mr. Finra mentioned Don Galliano his, you're going to see some of the grapes owned by Gallo Winery. That is just a big part of the presence in the region. It's the agricultural rite, it's the vineyards and so on.

background audio 6 (01:25:44):

That's kind of unfortunate that the air has kind of lost a lot of that history, but that's

Peter Kavounas (01:25:53):

Progress. It's progress. So Lloyd Michael treatment plant built in 82, we're not going to get out of the van, we're just going to do a drive-through. So you just get a flavor. The connection to both Canyon water and the Rialto Feeder is just behind this building. And the original treatment was the part that you see on the left right

background audio 6 (01:26:15):

Here. And what are these, these retention ponds

Peter Kavounas (01:26:21):

Or

background audio 6 (01:26:21):

They're just using gravity to kind of help?

Peter Kavounas (01:26:24):

So the process separate The process is it's clean water. So a little different than wastewater. So

background audio 6 (01:26:32):

Clean water coming from the mountains and the feeder

Peter Kavounas (01:26:35):

Pipe and the feeder pipe, you get a little bit of an additive to it called flock. So flocculation is the process that by which the flock mingles through the water attracts particles and becomes larger in particle size.

background audio 6 (01:26:54):

So is that something they're adding?

Peter Kavounas (01:26:56):

Yes. Okay. Then it goes through ponds where the water actually slows down, and now that the particles are heavier, they drop out of the water. So there's sedimentation. Then after that, the water is returned with a channel and it goes through on the right side, just this side of the building and the far right portion of what you see, all the handrails. You have filters where the water actually goes through filter beds and they're usually granular activated carbon filters. The water goes through there and he finds them maybe left still by gravity, by gravity, and then the G A C, the granular activated filters then remove any other impurities that are in the water. In 1982 when the plant was built, that was the treatment process,

background audio 6 (01:27:47):

That

Peter Kavounas (01:27:47):

State of the art, state of the art. You add a little chlorine, you're done. So Alonso, please take us down a little bit. What you see in front of you is the expansion of the plant. This is the holding to the right, to the immediate right is the finished water tank where the water that has been treated chlorine has been added. It's waiting for service to customers below us in elevation. How much does this

background audio 6 (01:28:16):

Hold?

Peter Kavounas (01:28:17):

That is 16 million gallons.

background audio 6 (01:28:25):

16 million gallons. Looks like.

Peter Kavounas (01:28:26):

Yeah. And the one next to it is six actually. And there's room for another one behind that as they expect demands will grow. So now what you see, stay here, Alonso, please. What you see here is the expansion of the plant is you have a whole new building that's added, which has new granular activated carbon contactors and room for more. Why? Because there's more impurities to remove and to the right of it, the small building is a building where you have ultraviolet light because there's more organisms that we know need to be killed. So you see treatment process being added and being added again to the plant.

background audio 6 (01:29:09):

So you have the carbon filtration and then ultimately you have the UV light. Yes, have the same system. My house down.

Peter Kavounas (01:29:17):

Okay. A little smaller scale I assume. Little smaller scale. Okay.

background audio 6 (01:29:21):

So is the district, we have a water district, are they required to keep a certain amount of gallons in reserve for emergencies for some disaster,

Peter Kavounas (01:29:35):

I would imagine

background audio 6 (01:29:36):

Requirement? Not necessarily, except there are certain flows that they would be required to meet for firefighting demands. Typically the health department will want to see a certain volume of water and storage in these tanks that we see here. And those volumes are based on an hourly or a daily amount. So we wouldn't be talking about a week storage or something of that nature. It could be eight hours or something of that nature. So for a size of a utility of Cucamonga, you might be looking at say 75 to a hundred million gallons of storage throughout the entire system. And so how are you managing or rather monitoring the water that's coming in and the water that's going out. How's that done?

Peter Kavounas (01:30:25):

I can tell you from my past experience of water coming in is measured through a fairly precise meter. Metropolitan has a meter, and in this case, Cucamonga likely also has a meter. So they both get a meter read and they compare because water costs money in terms of what's going out. The same thing, flow meters going out. Then you have the customer's meters where the water is being sold. So is measured at many different places. In terms of what you have in the storage facilities, there's instrumentation that gives the district system control. There's a term for that. It's called S scada, which we love acronyms. In our business, it's supervisory control and data acquisition is scada and this entire plant is instrumented. It all shows up in a computer screen at the operator's desk there. And so he knows where every drop of water is through the entire plant. So let's why do

background audio 6 (01:31:26):

You have some iron tanks and some, it looks like cement tank old. Those are new. Okay. Yeah.

Peter Kavounas (01:31:32):

This is the backflow tank. So the filters flow through gravity in one direction, but once in a while they need to be back flushed. So there's some finished water here that is used to push up and freshen up those activated carbon filter beds and then unclog them. And on the far right, I don't know if we can see them or not, they're behind the circular tanks. They're actually not very visible from here are the sludge ponds and sludge is important in our business. In this particular case that they have a hauler of waste, I think it's the company waste management. They will assess the what's in the sludge and haul it off to the right disposal site. Everything that's collected from the water has to go somewhere.

background audio 6 (01:32:25):

And is that sludge just buried or is it actually used

Peter Kavounas (01:32:29):

For landfills? Landfills, some of it for agriculture, it goes everywhere. But there's sludge is constantly produced. We'll talk about sludge again at the W F A treatment plan because there it is actually an operational concern here. They've got their sludge management so that it doesn't restrict the operation of the plant. If you ever want a detailed tour, I wouldn't be the guy to give it to you, but Cucamonga would be happy to host you and give you a detailed walkthrough on the treatment plant.

background audio 6 (01:33:04):

Walk through the ponds and

Peter Kavounas (01:33:09):

Sure.

background audio 6 (01:33:10):

Tree

Peter Kavounas (01:33:18):

Solar panels on the left. You'll find that in general districts have property that's available for needed for expansion of treatment plants, but also available and then can be used for, you'll see solar facilities installed other places as well. So this plant meets about half of Cucamonga as demand in total.

background audio 6 (01:33:49):

Just this one plant?

Peter Kavounas (01:33:51):

Yes. They have another smaller one that treats canyon water directly.

background audio 6 (01:33:57):

Now, do you know if the solar panels does supply all the power that is required for that plant?

Peter Kavounas (01:34:02):
Oh, no, no,

background audio 6 (01:34:03):
No, no.

Peter Kavounas (01:34:07):
Treatment of water is very energy intensive. Actually, I think

background audio 6 (01:34:12):
Salty,

Peter Kavounas (01:34:13):
Yes.

background audio 6 (01:34:14):
Trying to push that water into the filters.

Peter Kavounas (01:34:18):
Yeah, the RO membranes actually water in California is the largest consumer of electricity. The pumping of water for movement and treatment is the largest consumer of electricity.

background audio 6 (01:34:36):
Really? Yeah.

Peter Kavounas (01:34:38):
Statewide.

background audio 6 (01:34:42):
Guess that. I guess it's energy

Peter Kavounas (01:34:46):
Intense. Well, we move all that water from Northern California to Southern

background audio 6 (01:34:49):
California. Oh, okay. It's half over the mountain. Expensive

background audio 10 (01:34:56):
Energy intense

background audio 6 (01:34:59):
Pump that water. You got six foot pipe.

Peter Kavounas (01:35:04):
That might be gravity fed. Actually, do you know Chris? Is Rialto feed or Gravity?

background audio 6 (01:35:09):
Oh, it probably is because the silverwood is,

Peter Kavounas (01:35:12):
It's higher up. Yeah,

background audio 6 (01:35:17):
Generators.

Peter Kavounas (01:35:25):
So we're going to look at sense vein basins. You're familiar with them, but hopefully you'll see them with a different perspective after our conversation. So these basins are owned by Conservation District

background audio 6 (01:35:43):
Owned by

Peter Kavounas (01:35:43):
Who? Conservation district. San Bernardino County Flood Control District. I believe it's district number one. They have several different districts. I believe they're tax funded. District number one is the area that we're in right now. The basins are owned by them. They're operated by I U A according to the four party agreement. The four parties are i u a, obviously the conservation district, I mean the flood control district, the conservation district and water master because recharge to the basin is done according to the judgment only by approval by water master.

background audio 6 (01:36:25):
So it's the county that comes in there periodically and cleans up all the vegetation.

Peter Kavounas (01:36:32):
It's growing. The vegetation above a certain line is cleaned by the county according to the four party agreement. The vegetation below a certain line. It's done by i u a funded by i u a and water master. So it saves them money and it allows the party's use of the facility. So you have a channel here.

background audio 6 (01:36:56):
This is being fed by just one of the streets.

Peter Kavounas (01:36:59):
Yeah, the hills behind

background audio 6 (01:37:00):
Us.

Peter Kavounas (01:37:01):

Yes. This is, I believe that's San Vein Creek that we went past and it brings water from the mountains behind us. Yes.

background audio 6 (01:37:15):

So normally this is probably dry this time

Peter Kavounas (01:37:17):

Of year. Yes.

background audio 6 (01:37:19):

But there's still quite bit of water.

Peter Kavounas (01:37:21):

Yes. So stop here for a second. Alonzo.

background audio 6 (01:37:36):

This is concrete. So the water's not given an opportunity to

Peter Kavounas (01:37:41):

Not much recharge anything. Not much. Now you'll notice on the left purple pipe, which is the insignia for recycled water. And you may ask yourself, why in the heck is there a purple pipe out here? So one of the projects, the parties funded according to the, so we do a recharge master plan update every five years. Actually, the board just approved the 2023 recharge master plan yesterday, and it's going to be filed with your court in the next week. In that recharge master plan update, the parties in 2013 identified certain projects that would enhance recharge to Chino Basin. And you are in the area of one of them. And so recycled water is brought here to the San vein basins, which are right behind the berm right here. And from here it's pumped. The basins run from uphill to downhill in a dog leg. 1, 2, 3, 4, and five is the lowest. Five doesn't percolate as well, but it's a really great collection point and is large. So the project was to take water from five and pump it up to one and give it a chance to percolate again, mostly funded by grants. By the way, there's a lot of ability to fund projects with grants. So once the parties said we want to do it, then they apply for a grant, they get a grant, and it cuts the cost in less than half. So the manifold you see here is to bring recycled water in and there is a pump station that pumps that water up to San vein one.

background audio 6 (01:39:23):

And so this water ends up in one of those from tension pumps

Peter Kavounas (01:39:27):

In five. In five in five, yeah. So let's drive on along.

background audio 6 (01:39:31):

And that says percolate. Well, because just the

Peter Kavounas (01:39:32):

Soils, right? Right. Imagine as water is flowing, the heavier things, larger rocks, gravel drop out first. The finer things carry further down. So by the time you flow down to San vein five, it's more packed

background audio 6 (01:39:49):

Like clay.

Peter Kavounas (01:39:51):

Yeah. And so here's five to the right and water is going to come from the north from ahead of us. It's going to flow all the way down and down and down. And it has some internal berming and internal spillways to control the flow of water. But the waves viewed from a recharge management point of view. This is primarily for holding water and giving us a chance to move it back uphill to San vein one and recharge it later.

background audio 6 (01:40:26):

So will the water ever get to the above, that roadway there?

Peter Kavounas (01:40:31):

Above the spillway? Hopefully not. But if it does a

background audio 6 (01:40:35):

Hundred year flood like waters,

Peter Kavounas (01:40:39):

Some frequency, yes. Some very high frequency like that. And you can see of course sediment management, right? Water, even storm water with it. A lot of sediment. And we always have to scrape it to keep the basins from clogging up. Have an operation to keep scraping, keep the basins percolating. This basin does percolate also just not as well as the other ones. You can see some of the instrumentation coming up here on the right is probably measuring either water flow or water levels. Sub telemetry, transmitting the data. Squeaky clean. They've done a good job cleaning it.

background audio 6 (01:41:39):

I was just wondering why you missed that spot.

Peter Kavounas (01:41:42):

There must be a reason I was thinking the same thing.

background audio 6 (01:41:51):

Probably endangered sand.

Peter Kavounas (01:41:55):

We do have, because of standing water, there is breeding of fly. And so the vector control is another aspect that the parties and I u a fund. Yeah.

background audio 6 (01:42:05):

So you have these standing pools of water, which attracts mosquitoes. How is the mosquito abatement district also here monitoring and

Peter Kavounas (01:42:19):

How do

background audio 6 (01:42:19):

They control

Peter Kavounas (01:42:20):

Vector control? Yeah. And that is also funded by I u A in the parties primarily because the homes nearby would be heavily impacted. Otherwise

background audio 6 (01:42:30):

Yeah, that's why I'm asking.

Peter Kavounas (01:42:31):

Yeah, yeah, yeah, yeah. Do they

background audio 6 (01:42:33):

Put fish in there

Peter Kavounas (01:42:34):

Or? Oh no, I think it's all spray. I think so too. Yeah.

background audio 9 (01:42:37):

I don't know a whole lot about it.

Peter Kavounas (01:42:42):

So this is all five to the right, immediately passed it. And so it's

background audio 6 (01:42:47):

Much larger than the others.

Peter Kavounas (01:42:48):

Yes, it's huge. Passed it and off to the right is four.

background audio 6 (01:42:58):

And what's that game

background audio 10 (01:43:01):

Legend.

Peter Kavounas (01:43:02):
That would be a storm channel

background audio 6 (01:43:07):
From the freeway

Peter Kavounas (01:43:09):
From another drainage from the freeway. Yeah, possibly.

background audio 6 (01:43:13):
So storm runoff from the freeway is going to have all sorts of

Peter Kavounas (01:43:16):
Cameras. Yes.

background audio 6 (01:43:17):
So they would let that come in here.

Peter Kavounas (01:43:18):
Yeah, it's got to go somewhere. The

background audio 9 (01:43:24):
Earth is a tremendous filter and a lot of the gases, oils suspended, solids get filtered out.

background audio 6 (01:43:38):
Those are very expensive to remove, right?

background audio 9 (01:43:40):
Yeah. And so the earth, then the earth just does it naturally.

Peter Kavounas (01:43:59):
So you stop here for a second. Alonso, what you have is to the right, you have number four. Number four. And straight in front of us is number three, which has water in it. And water is percolating. I wanted to share with you in the booklet we handed out, and tab number two is a page from an annual report that we filed and wanted to share with you the data that's on that. We didn't have a chance to talk about this in the office. Excuse me for one second. All the materials that are in the tabs are from things that have been filed with the court in the past. So you have, in this case, a page from the annual report behind it is the actual filing with the court, where it came from and the document that was filed. So you have a quick and easy reference on that. You can see the history of types of water recharged in the basin going back to the seventies since the beginning of the judgment, you can see that you had storm water and dry weather flow is the low blue, the light blue in the bottom, and then imported water is the green.
(01:45:16):

And you can see that starting from the mid eighties on recharge in the basin was getting lower and lower. That coincides with the agricultural pumping

(01:45:35):

Diminishing. It coincides with lining concrete, channel lining and relatively little management of recharge in the basin. What happens in 1998 is the court reassigned water master to the nine member board directed water master to create that O B M P that Andy mentioned. And part of that included program element number two, which is recharge management and creating those recharge management plans. And so in the years that followed, the plan was created, facilities were built in different tranches, and then recharge started improving. And now you have a completely different picture, including the ability to recharge recycled water because of the C D A being conceived.

background audio 6 (01:46:31):

So recycled water didn't even start happening until 2005?

Peter Kavounas (01:46:34):

Yes, yes. And

background audio 6 (01:46:37):

Looks like it became a gradually larger and larger.

Peter Kavounas (01:46:42):

And that coincides with the construction of C D A. It coincides with maximum benefit, which the approval by the regional board to use recycled water.

background audio 9 (01:46:54):

And it's a very consistent source of water compared to imported water or storm water. So very reliable.

background audio 6 (01:47:02):

What's the definition of storm water? Again,

background audio 9 (01:47:07):

The natural runoff that comes off the mountains or the concrete and paved surfaces that enter the channels and then are diverted out of the concrete channels into these percolation basins, what we're showing there on that chart. So it's artificial recharge of storm water. Storm water will fall on pervious surfaces too and will become part of that sort of aerial recharge as well. But that's not what's shown on that. So

background audio 6 (01:47:51):

This water right here that's coming up, is that flowing in from number two?

Peter Kavounas (01:47:55):

That's probably, I want to say that's recycled water coming into the basin. Storm water would come from the channel that you see there that's called the Hawker Crawford channel. And it would bring

stormwater in if it were maybe after a big rain. But right now it's being filled with probably recycled water being pumped up.

background audio 6 (01:48:17):

Do you have a deal with the fish and game with any of the migratory wildlife that comes in here?

Peter Kavounas (01:48:26):

I've never heard in my time here, I've never heard of any issues with fish and game, any habitat issues at all.

background audio 6 (01:48:33):

Because this is a stopover for all sorts of up in our backyard.

Peter Kavounas (01:48:44):

Yes. And here's Sylvania one, or is it two? I think we're at two. Two. So these are the big producers in terms of recharge collectively the complex, the sense of in complex is the largest recharge facility. And on a good year it can recharge up to 20,000 acre feet of water. That's a big gulp of water to go in the basin. And because we're still relatively high up, it benefits the entire basin.

background audio 6 (01:49:18):

How deep is the water right now?

Peter Kavounas (01:49:22):

Yeah, I don't know. Probably not that deep. Maybe a foot at the deepest. And here's one. And you can see immediately here on the right, you can see stormwater coming in from a channel for stormwater coming in from the north. So you must, your home must be somewhere up here,

background audio 10 (01:49:58):

Correct? Yeah. Back going down. Stop

background audio 6 (01:50:07):

Right here. I right there.

Peter Kavounas (01:50:09):

Ah. Do you have any fly issues at home?

background audio 6 (01:50:12):

We do. You do? Mostly it's mosquitoes when you're getting mid-summer, late summer until the water goes back down or the cold will kill 'em. But the last couple of weeks I've, and they're called ankle,

Peter Kavounas (01:50:34):

Ankle biters mosquitoes

background audio 6 (01:50:35):

Because they apparently flow fly out the ground and it's, I've been covered with mosquito bites for the last couple of weeks.

Peter Kavounas (01:50:43):

Well, we should definitely pass that on to, I uua get to wear

background audio 6 (01:50:45):

High socks, but I believe the imported water bubbles up out upstream here. And also you'll get a lot of wildlife. Wildlife uses these obviously very important during the hot summer months just for coyotes, deer mount lions, just to have a source of water. So there's a lot of wildlife that comes back there. Interesting. All the time.

Peter Kavounas (01:51:21):

As a neighbor,

background audio 6 (01:51:22):

They have the very large channel underneath that road here.

Peter Kavounas (01:51:28):

As a neighbor to this facility, how do you feel about the wildlife and that uses it? Well,

background audio 6 (01:51:33):

I love it. In fact, I was very disappointed when we first moved in the vegetation in this pond. This was back in probably 93, 19 93

(01:51:46):

When we first moved that house. The vegetation here is very thick in connection with the water that was back here. So it's a really very cool, you can tell just natural landscape that wildlife were able to use. And then I realized very shortly that the county would come in and just clear it down to the dirt, which that bothered me because it took away all that habitat for that wildlife. I mean there might've been a lot of salamander frogs, a lot of reptiles aisles, nesting spots for birds. But obviously if you're going to have that vegetation there, it's going to be very thirsty. It's going to be

Peter Kavounas (01:52:48):

Vegetation not good for recharge. And it's

background audio 6 (01:52:50):

Water intensive just because of, so I understand why it's got to be cleared out, but even obviously weeds could be very invasive. So there's always spots there for wildlife will figure out a way to utilize that resource. And you'd have a lot more migratory birds like geese on a much more regular basis because of the loss of weapons and everything. If that was a permanent feature of it, that would be a waste station for them. So there's obviously human needs, but there's also wildlife needs. And

Peter Kavounas (01:53:34):

How do you find that balance

background audio 6 (01:53:36):

Or do you find that balance? And obviously there aren't any environmental groups that are making issues with

Peter Kavounas (01:53:44):

It. Not on these. Yeah. So we wanted to stop here and show you what you're looking at is, but

background audio 6 (01:53:53):

As a neighbor, just to kind of

Peter Kavounas (01:53:54):

Answer your question,

background audio 6 (01:53:55):

As a neighbor, it's living next to it. I find that it's just very non-intrusive and it's always nice to have body of water, even if there's mosquitoes coming around. But it's definitely better than having more houses.

Peter Kavounas (01:54:17):

Right? It is open space. Yeah, you're right.

background audio 6 (01:54:20):

Not having a neighbor. So I much prefer it than to be in the middle of the housing track.

Peter Kavounas (01:54:29):

Very

background audio 6 (01:54:29):

Good. Which is one of the reasons why I bought the house, because I wouldn't have anybody behind me. That's your backyard there? That's my backyard. And we always call it Lake Ochoa. You stand off our balcony and look at it, pretend that you have a water feature.

Peter Kavounas (01:54:50):

Very good.

background audio 6 (01:54:52):

So this right here is one of the last remnants of

Peter Kavounas (01:54:58):

Vineyards.

background audio 6 (01:54:58):

Vineyards. And across the way there's another large portion.

Peter Kavounas (01:55:02):
Yes. You're looking at a hundred year olds in findel grapes that are dry farmed. I

background audio 6 (01:55:10):
Have a couple bottles of those at home.

Peter Kavounas (01:55:11):
Gallos

background audio 6 (01:55:12):
Binds. Yeah.

Peter Kavounas (01:55:13):
Yeah.

background audio 6 (01:55:14):
Leafing wines.

Peter Kavounas (01:55:15):
Yeah, the grapes probably came either from here or just across the channel. So the practice, it's called Amar Agricultural Managed Aquifer Recharge. That is very popular, especially in coastal California. And it's a concept that we picked up and thought, well, we do have some open spaces. Could it work in Chino? So back in 2019, just before Covid, we talked to Fontana Water Company that has a waterline running through Cherry Avenue, the one that is just immediately to our right. And they built a turnout just about where their truck is.

(01:56:00):
Of course they didn't have any extra water to put in because we had a drought since then. Last year it rained and rained and rained. And so for the first time this year they had water to put in. We put water in and watched what would happen. Would it work? Would it travel all the way down and evaporate? Would it damage the grapes? And to our surprise, we found it went straight down into the ground. It had no negative effect on the grapes. And so Fontana Water Company ended up banking not a large amount, but it's a pilot 25 acre feet of water, which is cost savings to their customers. That was water that they had in excess. So that'll keep the rates down for their customers. And more importantly, we have a project that could work in the future where we could actually plan, maybe even bring recycled water here and this site could turn into a few hundred acre feet of recharge on a more regular basis.

background audio 6 (01:57:06):
Well you notice that these grapes are not irrigated. So how does this grape plant get its water? So if you look at say this find that's right in front of us here. Normally if you go to Napa Valley, the grapes are beautiful. They're in very straight rows. They're trained to be trimmed along these rows and people can various easily black out rows and pick the grapes, but that's not what you have here. And those grapes in Napa Valley are irrigated because they obviously have a lot more water up north than we do down south. What they've done is they've let this grapevine grow as more like a bush. So we don't get a lot of rain obviously, but what we do get is a lot of condensation in the air. Like day for today, what will

happen is the condensation will condensate on the leaves and then drop off onto the ground. And if the vine is self irrigating, because the way they let it

Peter Kavounas (01:58:12):

Grow, very interesting

background audio 6 (01:58:14):

And that's why you had grapes here because you didn't, back when it was the biggest wine growing region in the world, they didn't have ever irrigation for any of it. They all grew like this unless you were next to a source where you could vine and stickum. But for this area, which was at that time, the hinterlands, nobody was out here. This is how they grew. The grapes when you don't have irrigation, the graves,

Peter Kavounas (01:58:43):

I've been told that these have very interesting deep roots as well to go down and find any moisture that may be available deep in the soil. So we wanted you to see this. It's just another way of recharge. We're actually very happy that Fontana Water was willing to go along with a pilot and we're very happy that it worked for them.

background audio 6 (01:59:08):

Yeah, I'm just happy they haven't built a gas station

Peter Kavounas (01:59:10):

Here. Yeah, the land eventually could get developed.

background audio 6 (01:59:16):

Yeah, I'm

Peter Kavounas (01:59:16):

Sure it was. So you might get some neighbors, but

background audio 6 (01:59:19):

As the few remaining parcels, they become more and more valuable just from a historical perspective because today, if you drove around Norwalk, I dunno if you've ever visited Norwalk, there's really no reason to, but it's all Norwalk was built after World War ii. My dad, mom bought that house for a dollar down $7,400 and Barbara was just $46 a month. But before World War ii, it was all dairy and you would never know that Norwalk was in Dairy town. If you looked in today, it's all strip malls and post World War 2000,

background audio 9 (02:00:04):

That's where it's

background audio 6 (02:00:05):

Interesting and that history, in 30 years or maybe 10 years, when that's gone, that side of the road is gone. People won't know that this was the largest grape rooney region in world. No grapevines anywhere. So hopefully they won't

background audio 10 (02:00:26):

Develop it.

background audio 6 (02:00:28):

Our

background audio 9 (02:00:28):

Agricultural pool meetings can be interesting because we've got the old farmers that are there and they can provide us with that history.

Peter Kavounas (02:00:37):

Yeah, exactly. They have the history.

background audio 9 (02:00:41):

Gino Philippe is what is in the admiral, and so he's got a lot of old interesting stories. Mr. Fetra here, we've lost a couple over the years.

Peter Kavounas (02:00:54):

Galeano was until his passing.

background audio 9 (02:00:56):

Yeah, Don Gallo. Gene Cooperman.

background audio 6 (02:01:00):

Don was a brilliant farmer. Yeah, I think the winery.

background audio 9 (02:01:07):

What's that? I think

background audio 6 (02:01:07):

The Felipe wineries up to sale.

background audio 9 (02:01:09):

Oh, is that Gino's

Peter Kavounas (02:01:14):

Brother? Gino's brother, yeah. So a lot about, a lot Judge.

background audio 6 (02:01:27):

Yeah, I'm kind of a trivia guy in that way. I'm like history buff, which is the first thing I did when I moved here was just interested in history. I moved here from Monte to Beach and my wife grew up in Long Beach. I grew up in Norwalk. We moved out here four years ago. She thought I brought up the end of the world

Peter Kavounas (02:01:54):

And

background audio 6 (02:01:55):

In one sense it kind of was because you could at that time be on my back balcony and look east and at night it was completely dark because there was nothing, it was all grapevines and none of this development was here. And we were the last housing track to the east. So you didn't have a Hunter's Ridge and Hunter's Ridge, which we just passed through called Hunter's Ridge because when we moved here they still allowed hunting there. Hunter quail and coming from Norwalk, I thought it was a gang shooting in the afternoon hear gunshots, but they were still hunting in Hunter's Ridge is now all houses. But history is just

background audio 10 (02:02:46):

Very interesting.

Peter Kavounas (02:02:49):

When did you move

background audio 6 (02:02:50):

Out here? When did you move in 93. Oh, actually 91. I moved out here in 91 because my job brought me out here. Came up here to manage our house council operation, house attorney and I actually moved into this house in 93.

background audio 10 (02:03:12):

Okay.

Peter Kavounas (02:03:15):

So have you come across information about Metropolitan Water District? Do you know much about Metropolitan Water District? Just a

background audio 6 (02:03:22):

Little bit, but I mostly focused on

background audio 10 (02:03:31):

Local

background audio 6 (02:03:31):

History here. The sense of fire just divides if you've ever taken any

background audio 10 (02:03:59):

Yes,

background audio 6 (02:04:00):

All the stops are all packed.

Peter Kavounas (02:04:03):

Yes, yes, yes.

background audio 6 (02:04:05):

Stopping person right down the street, whatever. And they're smart. Save those buildings, repurposing big breweries, restaurants, whatever,

Peter Kavounas (02:04:29):

Have a lot of charm. Yeah,

background audio 6 (02:04:31):

They do. They do.

Peter Kavounas (02:04:35):

The area was also the reason that Kaiser Steel Mill was here, as I understand it, is that this was a safe location far enough from the coast in case of an attack by the Japanese. And so this was where the Kaiser steel was huge, and that's why they got a large chunk of the non-ag water. Right.

background audio 6 (02:04:59):

People talk to people about Kaiser, they think of the health Kaiser, they realize that Kaiser Medical Tructure, Kaiser Steel

Peter Kavounas (02:05:07):

Plant, which is a

background audio 6 (02:05:08):

Health plan for the employees.

Peter Kavounas (02:05:11):

Yes.

background audio 6 (02:05:13):

And so

Peter Kavounas (02:05:16):

Kaiser Permanente is related to Kaiser Steel. Really? It was the employee's health plan for Kaiser Steel.

background audio 6 (02:05:22):

Wow. Steel workers. But like I said, people don't know that connection and you don't know the history. You don't know that connection. You don't know where it came from. The gas. Gas is the meeting trail. Five different old trails from West is reason why they through there. There's reason why all the trails met. Yes.

Peter Kavounas (02:05:55):

Same reason. Ontario is an area of warehousing today because of Kaiser Steel. Kaiser need a rail to get its finished war product to the harbor and to the rest of the United States. That's why

background audio 6 (02:06:13):

It's so valuable for all of the light industrial and warehouses that you have here. Because it is just like the home past was kind of the center of Margo's trails in Empire Ontario was kind the focal point of all transportation claims, trains and not all dealer. So you need that transportation hub to be able to store things and then send them out from a location. That's why they came for all those acres and acres. That's right. Ag land to buildings commercial.

Peter Kavounas (02:07:00):

So in our water master language, we call that land use conversion. And there's a water right swap that's associated with when old farmland becomes now commercial, industrial residential, there's a water right exchange that happens

background audio 6 (02:07:17):

That

Peter Kavounas (02:07:17):

What was the ag water right associated with it now is allocated to the appropriator that actually serves that peace of mind. So we have a G I S map, that's all part of our assessment package that is filed with the court on an annual basis with the annual report. And the map shows the land that remains to be converted because of the water connection that it has. Interestingly, Ontario is at a location where a truck can take a load from the Long Beach Harbor, drive it here, unloaded and return back Ontario to Long Beach all in one day's work. And so that is significant apparently for the trucking industry because they can bring things from harbor to here. From there you got the rail distribution that we're going to take it everywhere

background audio 6 (02:08:11):

Else. That one day is an important factor. Yeah. That's the same reason why all of the missions are built in the

Peter Kavounas (02:08:20):

Yes.

background audio 6 (02:08:20):

Yes. That's where you stop as your journey up and down California. Yeah. Yeah. The history is, it's very important.

Peter Kavounas (02:08:30):

It explains the world around you. So I think for our purposes today, the things we wanted you to know about Metropolitan Water District, and I apologize because doesn't sound like a lot. I apologize if any of this is ing for you, but Metropolitan Water District was formed to bring water from the Colorado River. And when he was formed by the original 13 cities, it later acquired other types of member agencies, municipal water districts to be more specific. And this area here formed the Chino Basin Municipal Water District, which now purchases water from Metropolitan Water District. This Chino Basin M W D later renamed itself to I U A based in M W D, as you likely know, was the original Water master appointed by the court. In 1998, the court at the encouragement of advisory committee renamed the Water Master to an independent nine member body. The 1998 order of the court is a great description of who we are today and how we operate. And so it created the distance from the Met Member Agency that was Chino Base and M W D. Then that agency now I u a has member agencies that buy the imported water and they bring it through the two treatment plants, Lloyd Michael that we saw and AGU DJOs that we're going to see.

background audio 6 (02:10:15):

And how long have you been the Water Master?

Peter Kavounas (02:10:17):

11 years. 11

background audio 6 (02:10:18):

Years.

Peter Kavounas (02:10:21):

So AGU DJOs was built by a joint Powers authority. This joint Powers authority is I u a member agencies that pulled their pennies together to build their own treatment plan. And so those are cities of Upland Chino, Chino Hills, the city of Ontario and Monte Vista Water District. The five of them each appoint a member to the J P A government board. They have their own staff that runs the treatment plant, that owns and runs the treatment plant. So remember Rialto Feeder is following us. They take water over on the east side of the basin, and

background audio 6 (02:11:01):

Monte Vista covers Montclair,

Peter Kavounas (02:11:04):

Mostly Montclair parts of

background audio 6 (02:11:06):

Mon.

Peter Kavounas (02:11:08):

Chris. Does Monte Vista serve any of Pomona service area?

background audio 10 (02:11:15):

I'm sure it does. They do it really small.

background audio 6 (02:11:22):

Yeah.

Peter Kavounas (02:11:23):

Yeah. A little bit of lacework effect on the boundaries are never as clean as they look on the map. There's usually some neighborhoods that go in, but it's mostly Montclair, right?

background audio 10 (02:11:34):

There is a very small

Peter Kavounas (02:11:35):

There is. Okay. Oh yeah. So what we'll see is, again, an older time, late seventies, I think it was 1980 actually. This plant was built coincidentally, similar timing as Lloyd Michael Water from here is used to meet direct demands and it can also be used. So the term in lieu is something that is used quite a bit in our business. So Metropolitan Water District can put water in the basin in a stored water account under a storage and recovery program called E Y Y, the Dry year Yield program. I know you know about it. I'm not going to go into the case at all, but d y y. So how does M W D put water in the account? They either take water from Rialto Feeder and flows the channel and it goes into recharge basins that we'll see later. Or it goes through the treatment plant that we're about to see. And as treated water, it goes through injection wells. The third way is if an agency takes surface water in lieu of pumping, that counts as a put in the stored water account.

background audio 6 (02:13:06):

How are they taking surface water

Peter Kavounas (02:13:08):

From the treatment plant? Okay, so in other words, they have an accounting of, well, this year we would've taken, let's say a hundred acre feet of imported water and we would've pumped all the rest. But for you M W D, we'll take 150 acre feet and we're going to back off of pumping 50 acre feet. That 50 acre feet is now in Mets stored water account. It's taking in lieu of pumping. So the water that comes through the treatment plant can also be used for in lieu, puts into Mets storage account. So we'll see this plant. We're going to do the same thing at drive-through. And we're going to see where again, we're going to see our old friend, the Rialto feeder.

background audio 6 (02:14:09):

What was the Rialto feeder put in?

Peter Kavounas (02:14:12):

Forties?

background audio 6 (02:14:13):
No, 1940s.

Peter Kavounas (02:14:14):
Yeah. Does anybody have an exact date on the Rialto feeder? Bob, do you remember? It's what

background audio 12 (02:14:24):
I didn't,

Peter Kavounas (02:14:25):
Yeah, I don't.

background audio 12 (02:14:27):
I prepared for this, but the judge is smarter

Peter Kavounas (02:14:30):
Than we are.

background audio 6 (02:14:36):
He's been around.

Peter Kavounas (02:14:37):
Yeah.

background audio 6 (02:14:40):
Is that coming up for what Or issues?

Peter Kavounas (02:14:46):
Of course. Every treatment plan. Every treatment plan, yeah. Yeah. And that's always the challenge. And water agencies be they a city water enterprise fund or a public agency always has a challenge. How do we raise revenue? How do you tell the public we have to raise rates? And having worked for a city myself, I can tell you it is the most difficult thing a manager can do. A manager like Chris has to go to city council and say, I know you don't see me very often, but I'm here with bad news. We don't have enough money. Yeah,

background audio 6 (02:15:26):
Not the message you want,

Peter Kavounas (02:15:27):
Not the message you want to give.

background audio 6 (02:15:57):

Well, Romans managed to do it and the only people who paid for the water was Romans that had to come to their homes. But to the general public, the water was free, took get out the fountain.

Peter Kavounas (02:16:13):

Do you know the role of the fountains in ancient Rome and ancient Italian cities?

background audio 6 (02:16:19):

Well, generally they were in the General Plaza where people would gather, talk about politics and get their water. It was after the fall, the Roman Empire. It was another probably 1500 years before people had fresh drinking water level a lot in their homes. But what was the role?

Peter Kavounas (02:16:51):

So water was brought with aqueduct from far away. They had some storage capacity in their systems. They had some little cisterns, but they didn't have a way to stop the flow of water. So once water was put in the aqueduct, it kept coming. It would run through the city and to let the water out, they had fountain. So the water would just constantly flow and come out. The fountain and the public was welcome to that. And as

background audio 6 (02:17:24):

In Pompeii, they actually had valves for water pressure and they were in Pompeii. There are these towers throughout the town, which there's some tires that like mill strain. Wow. What does that thing, it actually controlled the water

Peter Kavounas (02:17:39):

Pressure. The pressure and the flow

background audio 6 (02:17:41):

Got ized. It was pretty amazing

Peter Kavounas (02:17:43):

To do. The one thing the Romans didn't figure out was how to actually measure flow. They couldn't figure out that the area of a circle is pi r squared. They couldn't figure out the exponential. I'll tell you about that in a second. So let's look at the Alejo water treatment plant. So we're going to do a loop here. Here, slow down here for a second. Alonso on the left, there's water underneath this floating cover. This is their finished water.

background audio 6 (02:18:17):

Oh, that's a cover. I didn't realize that. Thought that was

Peter Kavounas (02:18:20):

Concrete. So you see the little bubbles on top. Those are buoyancy sewn in buoyancy foam, if you will. And the reason for the cover is because water exposed to the sun starts bioactivity. And so you have algae growing. So the answer to that is covers. There's covers of many different types. You put a cover

on it, you have a floating cover. It's better than a solid structure that is more difficult to access and maintain. The only problem you ever have with these is an occasional rip and tear.

background audio 6 (02:18:54):

What about balls?

Peter Kavounas (02:18:56):

About balls? Yes. Very innovative. LA water and power did it. In some places that works really well as long as they themselves don't biodegrade in the sun. What you see here on the left is their sludge ponds. This we will talk a little more about their sludge. Sludge in this plant is a problem. When they designed the plant, they didn't figure out exactly how much sludge they would be producing sludge to be. Remember that's all the soil is that have been harvested off of the water coming in. So there's always sludge that's being produced. Sludge needs to reach a certain moisture, content dry. In other words, to a certain point before it can be hauled off. And so the rate at which sludge dries matters because if you're producing more sludge, then you can actually get rid of because it's still wet. Then your plant has to slow down and produce less sludge, meaning process less water. This is the weakness in the plant. And so what does that mean? Well, it still meets all the demands, but if we ever wanted to do in lieu, water puts in the me account, we can't process more water. I speak generally the J P A can't process more water through this plant because of the bottleneck in the sludge processing.

background audio 6 (02:20:31):

They can't just make another sludge pond.

Peter Kavounas (02:20:34):

They can't. Apparently they're locked, landlocked. What they can do is have some mechanical measures where they can, in many places we'll have some mechanical tilling of the sludge that airs it out. Here. They hire a local farmer that comes in with his truck and drives through and scoops it and dumps it and scoops it and dumps it just to get it's going, to spread it and then eventually dries. And then it gets hauled off, but not fast enough. So that's a weakness in the plant, which affects basin management. Actually, it's interesting how it ties into basin management. So we're going to head up to the top where we have the Rialto feeder. Like every other plant water has a flow through the plant. The treatment process is essentially the same as you saw at Lloyd. Michael. Similar year built similar technology.

background audio 6 (02:21:34):

What's this smog water treatment by the plant? Is that

Peter Kavounas (02:21:40):

A trailer? It's a trailer. I'm really not sure. Yeah. So Headworks is here to the left. Water comes in from the Rialto feeder, which is right behind the berm. They take water in. They don't take canyon water like Lloyd Michael. They just have water coming in from Rialto.

background audio 6 (02:21:58):

So just the feeder

Peter Kavounas (02:21:59):

Pipe. Just the feeder pipe. So that's the plant influence. Water comes in. You have your chemical storage on the left, like the other plant that Lloyd Michael here you have flock being added. So it gets mixed. So that happens. And then you have sedimentation basins where it can settle out. So water flows very slowly through baffles to slow down and the heavier material drops, water flows south into the next structure. And that's the filters. And actually if you want, we can sneak a peek. We can run up to the filter structure and sneak a peek. Okay. Give us a chance to stretch legs. So we'll go up the stairs. So you have a process where the water has had chemicals added to it. So they can

background audio 7 (02:24:01):

These chemicals over

Peter Kavounas (02:24:01):

Here. Those chemicals, you can have the flocculation happen. It flows slowly and what's left comes into filters like these. Let's see if the others look any different. But the water. So that one's working. This one isn't working. But the water will, where's the filter?

background audio 13 (02:24:26):

The filter is right below the water there. You probably have an anthracite pole. So it's basically a gravel water's going to come in through from the sedimentation basin. Come in through here. It will go through the holes in the wall, tell what we call head loss until the pore space in between the gravel starts to get filled and the gravel is compressing that point. The water starts to rise. It'll eventually go over this wall. It'll continue to rise. That head loss, the elevation of the water that's stacking up on top of that gravel. That's one of the factors that we determine when a backwash would occur. So much head loss. We need to clean it out.

Peter Kavounas (02:25:06):

Then we need to clean it out first. Flow

background audio 13 (02:25:07):

The water. That water will go over to the basins over there eventually to dewater. That reversal will then stop water will then start to go back down the filter. You'll waste some of that at first as the gravel starts to ripen. Start to get some of that flock in there to make the gravel kind of sticky. And then it just goes into the

Peter Kavounas (02:25:35):

Doing good Now, want some doing good?

background audio 14 (02:25:58):

So they're constantly

background audio 13 (02:26:00):

Up and down. During the day, you'll steady state the system from the plants and the wells, and then during the morning you'll start to see the flows. All the volumes of water in the tank start to drop off. You'll say probably about nine or 10 o'clock. That level will start to go up. You'll see the total capacity in

the system will start to increase. Then once you get home from work, get in the shower, things of that nature, that flow will start to go down. So we see this curve all day long. Twice a day up and down. So

Peter Kavounas (02:26:30):

Once ready,

background audio 13 (02:26:32):

Once to go, yes. We'll have a little CT contact time. We'll have to sit there for a little bit. 20 minutes or so

background audio 14 (02:26:39):

That

background audio 13 (02:26:40):

Be determined. Based on the size,

background audio 14 (02:26:41):

You'll size the tank for that 20 minute contact sign.

Peter Kavounas (02:26:50):

So I wish we could ask them to run a filter for us. And you could see the backwash operation. Okay. Oh, there you go.

background audio 14 (02:27:03):

That's the rehearsing of the flow

Peter Kavounas (02:27:05):

Water coming up through the filters.

background audio 14 (02:27:07):

The air will come up, push in there, fluff up that gravel flowing over into these ponders wander hair dumping out here. The air go out into one of the basins out there. One inside, yes. You'll get a foam up in there. So that help down. Sometimes you'll have breaking up that gravel.

Peter Kavounas (02:27:35):

Any, that's all what goes in the trough is the muck that's been caught by the filter.

background audio 14 (02:27:40):

Okay, clear here. You can see the air again is breaking up that

Peter Kavounas (02:27:51):

It's going down through the filter. Right?

background audio 14 (02:27:56):

Fluff that up.

Peter Kavounas (02:28:04):

It might get another pass actually through the plant, but eventually the solids get separated and go as flu

background audio 14 (02:28:12):

Water off the bat be taken off. That still a of this water that's going to be,

Peter Kavounas (02:28:25):

Yeah, it gets cycled through the plant. One more time. Yeah,

background audio 13 (02:28:27):

A little miniature cycle. Package

background audio 14 (02:28:29):

The plant and it'll be introduced back. Actually head worse. About maybe 10% of the overflow back

Peter Kavounas (02:28:40):

Am so glad you get to see this. There is no amount of words and hand gestures to describe how a backwash of a filter works. This is perfect. Couldn't have timed it better.

background audio 14 (02:28:52):

Come over the outside of the wall here. See?

background audio 13 (02:29:02):

So underneath all this will be called a filter gallery or the piping gallery. Under that, you'll see all of the piping of the reversing of the flows on the water. It's going to go through one pipe and then a reverse. Go the other

background audio 14 (02:29:15):

Direction.

background audio 6 (02:29:30):

Smells clean.

Peter Kavounas (02:29:31):

Yeah, yeah, yeah.

background audio 6 (02:29:35):

Kind of like the backwash part of the water. Smells very clean.

Peter Kavounas (02:29:40):

Yeah. Yeah. This, I mean, again, this is state water, project water that's come through a pipe. It's just been filtered. There's really nothing. It's not like wastewater.

background audio 6 (02:29:53):

So this is water from Silverwood?

Peter Kavounas (02:29:55):

Yeah,

background audio 6 (02:29:56):

Exactly. It's mostly water from Silverwood. Yeah. All

Peter Kavounas (02:29:58):

Water from all over

background audio 6 (02:29:58):

It. So everything's coming from the feeder. Is Silverwood

Peter Kavounas (02:30:02):

Here? Yes. From the feeders. Silverwood. This plant only feeder water.

background audio 13 (02:30:07):

The drain to Silverwood that brings that water in. The Rialto feeder is behind Cal State's San Bernardino. You see those big white lines coming down the hill. Those are the drain to silverwood. That is all state water, project water coming through there. It's coming downhill. There's power generators at the bottom there. From there, it goes through the turbines and then just keeps on going this way to San Gabriel and the alto,

background audio 6 (02:30:31):

The water's really not that dirty.

Peter Kavounas (02:30:33):

Not that dirty to begin with, but not good enough to be portable. Right? Compared to

background audio 13 (02:30:36):

Wastewater.

Peter Kavounas (02:30:37):

Right. Wastewater. So the difference you'll see, and we'll drive through it at RP five, is the inlet isn't quite as simple as here's a pipe and a little water. And now you start treating it. The first thing you got to do is knock out the solids because wastewater has a lot of solids in it. And so there's larger grates. There's finer grates, and then you go back to the same process, essentially flocculation sedimentation.

Then there's clarifiers and so on. And eventually you get to a finished product that is still recycled water and you still can't drink it on the side. There's odor control, there's off gas, there's all those other things. Here you're starting with basically potable water and you're ending up with really potable water.

background audio 13 (02:31:22):

There's a lot of biological treatment too done in wastewater. So some of those solids, the bugs are basically eating all of the stuff in there. And then, like Peter said, it's going through that normal coagulation population demonstrations after it goes through biological treatment,

Peter Kavounas (02:31:41):

The primary treatment of coagulation, flocculation, and sedimentation. It's what I learned in college a few decades ago. This other stuff is newer. The extra, the UV disinfection, the iron exchange, granular activated carbon, those are technologies that have come up out of necessity in the decades. That ensued.

background audio 13 (02:32:10):

Getting cleaner

Peter Kavounas (02:32:16):

Kind

background audio 13 (02:32:16):

Of nerd out here on some of the Yeah, it definitely is. The launders are across there. There's requirements on how far the water has to travel to get out of the basin. So you figured it was there. It would've to travel all the way across. That's too far. So there, it just has to travel to launder. Technically you would say it would be out of the filter. So that's why you see these launders going through

Peter Kavounas (02:32:38):

A lot of engineering to get that.

background audio 13 (02:32:40):

This pipe here is the air scour, so there's air pumped in that pipe right here. And initially we saw those bubbles kind of agitating and elevating the media. That's what that pipe going across here is for air scour.

background audio 6 (02:32:54):

Now the process has been completed and just start filling up

background audio 13 (02:32:57):

Again. So now we'll do a filter to waste. So the first part, that media still has some junk in there that isn't really attached, so to speak. So that will run through the filter, that water will be wasted, return back later into the head of the plant over there, that it'll go through that process, that filtered waste. Like I said, we'll have that ripening period, get the media, get some flock in there, make it a little sticky, and then at that point, filter waste will stop. They'll start going in the system.

Peter Kavounas (02:33:22):

Coming back again. Back this way toward us. Yeah. There's much cleaner now. Yeah. Yeah. There's still a little bit of a haze to it. Let's keep moving. Okay. I'm really, the timing was incredible. I'm so glad we got to see this.

background audio 15 (02:33:48):

Clean. The walls you'll get, yeah,

Peter Kavounas (02:34:09):

Your red light's on. Your red light's on. Brian. His very good. Thank you. Thank you. That was helpful. Yeah, I appreciate it. I've worked

background audio 7 (02:34:28):

At a

Peter Kavounas (02:34:28):

Few plants. You have worked at a few plants. Indeed. Red lights are on. Gentlemen.

background audio 9 (02:34:42):

No

Peter Kavounas (02:34:42):

Blinking. Good. Red light on Bob.

background audio 7 (02:34:47):

Aye.

Peter Kavounas (02:34:48):

Yes, you're on. Okay, very good. There we go. Watch your leg. Thank you, Alonso. So now water from the Rialto feeder can go through this plant and it can also go, like we said, it can go untreated for recharge, but the treated water gets recharged and our next stop is going to be an A S R, well, aquifer storage and recovery, a well that can put water in and take water out. So Andy, if I can ask you to use tab three in the booklets and tab three in the booklets is a map again from an exhibit filed with a court. And we'll start talking a little bit more now about basin management. And Andy, maybe you can introduce the management zones.

background audio 9 (02:36:15):

Yeah,

(02:36:17):

So we're actually, the treatment plan is a little bit north of where the Chino Basin is in this management zone. One M one is. So we're up here and this water now is in a pipeline coming down this road to serve the agencies here in the Chino Basin in Management zone one. Now these management zones were delineated as part of the O B M P and what there were meant to be is areas where we recharge,

typically in the north groundwater flows to the south and it ultimately discharges in the south here. So we call 'em management zones because it's recharge groundwater flow to discharge, and so you could manage them separately. These are three main management zones, one, two, and three across the base management zone. One is experienced the most decline in groundwater levels prior to the judgment. Almost 200 feet of decline in groundwater levels in management zone. So this how is that? This was the area that initially developed Pomona, and so it was just more heavily pumped, heavily pumped.

(02:37:47):

And so it experienced a lot of drawdown. There's a lot of clays clay layers over on this side of the basin too, which when you have draw down and clay layers the water and the clays begins to drain out of them and start to compress. So we have land subsidence over here too. So low groundwater levels, land subsides a lot of issues that needed to be addressed in the O VT in management zone one. And that's the reason why the water master prioritizes a lot of its recharge efforts over in management zone one is to address the land subsidence that's occurring there to address the low groundwater levels. So when you see some of our maps that show how groundwater levels have changed under the O B M P, we see groundwater levels that have been rising over the last 20 years in management zone one. Groundwater levels have declined in management zones two and three over this last 20 year period. And that is really by design under the O B M P. So we're going to spend a lot of time over here throughout the rest of the tour looking at subsidence monitoring facilities, some of the recharge facilities like a S r and some of our recharge basins over here too that are part of the management plan for this part of the basin,

(02:39:30):

Ignoring part of the area where I live. Well, thankfully you don't have subsidence there. Yeah, right. Yeah. The eastern side of the basin is generally more coarse grained. There aren't as many clays clay layers over there. And so like I said, you need the clays in order to experience the subsidence. And so we've been monitoring subsidence over the years and it just doesn't seem to be an issue on the east side of the basin because of the coarse grain nature of the aquifer sediments. We do file a report

Peter Kavounas (02:40:12):

With the court

background audio 9 (02:40:14):

Is prepared

Peter Kavounas (02:40:17):

Under Andy's supervision and it has input from the stakeholders through a committee process, ground level monitoring committee. We have a scope of work of monitoring work analysis work, and that's all compiled in an annual report and filed with a court. If you have time to read everything we produce, judge, then I have no life then. You have no life. Exactly.

background audio 6 (02:40:43):

Notice with regards to that clay, we were looking out from, I don't want to fall. You can't really see playing as it's coming down off of mountain. It's all about rocky sediment. That is such a great region, that area right there. And so that's probably, you don't have as much subside there. Yeah.

background audio 9 (02:41:12):

Yep.

background audio 6 (02:41:12):

That's the geography.

background audio 9 (02:41:14):

That is true. And you've got Lidle Creek that's off to the east and that's a big alluvial fan that comes out of Lidle Creek as well as the smaller creeks coming out of the mountains that poit a lot of that core green sediment. The further you get away from the mountain front, that's where you start to have clays that settle out and lower energy

background audio 6 (02:41:36):

Deposition that's settling at the bottom.

Peter Kavounas (02:42:03):

If you got the shape of the alluvial fan from the Twanda preserve, then it was worth going there. Most people would miss that. But that's exactly the point.

background audio 6 (02:43:03):

What was the next location we were in?

Peter Kavounas (02:43:05):

Monte Vista, a s r. Well, it's a well number 32.

background audio 9 (02:43:18):

In order to inject you have to have treated water. And so it's the water that is treated there at Awa DJOs that comes down this pipeline called the Benson Avenue feeder. And it can take water off of that feeder and inject it, but it has to be treated water. It can't be raw imported water that is injected.

background audio 6 (02:43:44):

The amazing thing is, is that nobody thinks about where their water comes from. There's a storm in their house they turn on and come on,

Peter Kavounas (02:43:54):

It's from the tap.

background audio 6 (02:43:55):

Yeah,

Peter Kavounas (02:43:56):

It's from the tap

background audio 6 (02:43:58):

Put all this infrastructure set up decades

Peter Kavounas (02:44:06):
And you can't just build it and forget about it.

background audio 6 (02:44:10):
Right.

Peter Kavounas (02:44:11):
You can't even just maintain it and forget about it. You have to constantly improvise.

background audio 6 (02:44:17):
Yes. As you will soon find out with that theater pipe, it's probably reaching the end of its life.

Peter Kavounas (02:44:25):
Is it prestressed concrete?

background audio 6 (02:44:32):
Is it?

Peter Kavounas (02:44:33):
I believe it is. I think there was a,

background audio 6 (02:44:35):
It's the life.

Peter Kavounas (02:44:37):
I think it is reaching the end of its life

background audio 6 (02:44:40):
Coming up on a hundred years. Right? A decade and a half.

background audio 9 (02:44:49):
And it's a highly regulated industry too. And the regulations change over time, usually getting more restrictive, particularly with water quality. Yeah.

background audio 6 (02:45:02):
Thankfully it's not highly litigated either.

Peter Kavounas (02:45:07):
Right. Every drop. So the corner to the left is this otherwise inconspicuous little facility you would normally pass by and not know what it is.

background audio 6 (02:45:38):

And blue pipes are what?

Peter Kavounas (02:45:41):

Monte Vista's choice of color.

background audio 6 (02:45:44):

So no significance color.

Peter Kavounas (02:45:46):

Yeah. We thought this, so now we're past the imported water talk and we're getting more into groundwater basin, but as we said at the beginning, supplemental water, be it imported or recycled, we can't really separate that completely from groundwater management. So now we're going to see a, well, lemme get it, Bob. Thank you. There you go. Good. So when I first started working, my concept of a well was snow white style, a hole in the ground. Little,

background audio 6 (02:46:42):

Little bucket,

Peter Kavounas (02:46:43):

Right? Little bucket. This is what a well looks like. So when you hear

background audio 6 (02:46:49):

A cap, well,

Peter Kavounas (02:46:51):

This is a typical, well, so you have a big motor on top, you have a submersible pump that's deep, deep down inside. And so I don't have a diagram that we've officially filed with your court, so I couldn't bring you one today. But imagine a hole in the ground being drilled through specialized techniques. And then you have a steel pipe that goes inside that hole. The annular space gets filled with gravel. That steel pipe has perforations at depths that are designed by the likes of Andy because that's where you'll find the sands and the gravels. You want it to be perforated where the water will come in, coming through the gravel and into the pipe. Inside the pipe you have a string, it's called a well string. It's made of usually stainless steel that goes down and has a pump. And that pump pressurizes the water and drives it up the string and drives it out that pipe. That's how a well basically works. That pump is operated by the motor that sits on top. Once in a while there are submersible motors. If you had more neighbors, you didn't want the noise, you might have a submersible pump and motor. Typical, you'll find a motor on top and the pump in the bottom.

background audio 6 (02:48:19):

And how far does this Well go down?

Peter Kavounas (02:48:21):

This one goes down over a thousand feet. A thousand feet. Really? Yeah.

background audio 6 (02:48:26):

And so that's the water table. A thousand feet down

Peter Kavounas (02:48:30):

Water table is less than that, but you have to have your well goes all the way through the layers of the aquifer and the pump sits below the water table.

background audio 6 (02:48:40):

So at the bottom of that, well, where you have that pipe, is there a lake there or is it just a slush

Peter Kavounas (02:48:48):

Soil? It's soil water bearing soil.

background audio 6 (02:48:51):

Okay.

Peter Kavounas (02:48:52):

Water bearing soil. So you're

background audio 6 (02:48:53):

Sucking it out of that water bearing soil, which is why you need, I guess that power station there,

background audio 13 (02:48:58):

A glass of ice water that's half full. Put a straw all the way into the bottom. That's what it's,

Peter Kavounas (02:49:05):

So it has to flow through the pore spaces of the soil to get to inside our pipe and come up. So every water district has wells. These our farmers have wells, these our non-ag parties have wells just like this one. Some bigger, some smaller.

background audio 12 (02:49:27):

And every dairy and every farm has

Peter Kavounas (02:49:30):

A will like that. Has a will like that. Right. So the

background audio 6 (02:49:32):

Aqua fire isn't like a giant lake? No,

Peter Kavounas (02:49:36):

It is not.

background audio 6 (02:49:36):

But there are fires like that

Peter Kavounas (02:49:39):

In some very special geologic formations. Mostly limestone, limestone

background audio 9 (02:49:43):

Caverns that would have dissolved caverns. That might be like a lake. But here it's all sand and gravel and clay layers that have been laid down over the centuries and eons. And it's mostly the flow through the sands and gravels, the interconnected core spaces that when a well turns on, that's where it's drawing its water from. The clays are too impermeable. They have a lot of water in them. And what they'll do is they'll start draining into the sands and gravels and then their water will then go flow towards the wells. As they're draining that water is supporting those clays and they compress as the clays begin to slowly drain. And that's why we have land subsides. But these are all that water's

background audio 6 (02:50:36):

Always moving slowly,

Peter Kavounas (02:50:39):

Slowly

background audio 6 (02:50:39):

Move, but kind of like the river. But just

background audio 9 (02:50:41):

Slower.

Peter Kavounas (02:50:41):

Slower. We're slower, slower,

background audio 9 (02:50:42):

Slower. And it has to go through the forest spaces. So this flow through porous media, it occurs by mathematical equations. Fortunately for us, and that's the basis of groundwater flow modeling, is those mathematical equations on how wells can pump and water can flow through this porous media. And that's how we can predict how groundwater levels will change under different pumping regimes or different recharge strategies.

background audio 6 (02:51:12):

So how do you solve a chemical bloom and the water is just kind of moving on its own and trying to prevent it from contaminating other areas. Just pump it out.

background audio 9 (02:51:21):

That pump and treat. Yeah, that's a

Peter Kavounas (02:51:24):

Way of doing it. Case in point, this well, there is contamination nitrates under this. Well, so I had like to describe for you both functions of this Well, well as a production, well here pumps water out, it goes through the pipe through the manifold and it goes out through the pipe with a red valve

(02:51:49):

Down the pipe in the ground and up the street into a treatment plant where all of Monte vista's wells pump their water to be treated to remove contaminants that are in the ground. One plant. One plant. Instead of having one plant on each site, they centralized it and plumbed it so all their wells pump into one plant. So that's the function of pumping water out of this. Well now Monte Vista built four wells like this one that are actually reversible flow and they have an ingenious little pump valve inside the plant that we were just at. Agu. DJOs has the Benson feeder that comes down. Benson water from that feeder comes through that blue pipe. As it comes out of the ground, it goes past red valve is shut right now, it's shut. That water comes up the manifold and comes in and goes down into the aquifer and goes back out into those sands and gravels. So

background audio 6 (02:52:50):

That's kind of the deposit

Peter Kavounas (02:52:52):

Yes.

background audio 6 (02:52:53):

Into the bank

Peter Kavounas (02:52:53):

Account. That is an A S r. Well and operation, you can put your hand on the pipe, you'll feel water flowing in. There is water right now dry year yield program water that is being recharged into the ground because this year was wet and M W D has water to put into the basin and they're putting it like gangbusters.

background audio 6 (02:53:18):

Let's just measuring right here. This is the flow that's coming through.

Peter Kavounas (02:53:23):

I imagine So

background audio 6 (02:53:25):

Gallons per minute

Peter Kavounas (02:53:26):

Probably. I'm not a hundred percent sure, but most likely The interesting thing is that the well doesn't work the same. Taking water out as putting water in, it can put water in about half the rate that it can take it out. The physics of it don't work quite the same way. Yeah, it's one of those things. But this is a great example of what a typical wall looks like and what a typical A S r well looks like.

background audio 6 (02:53:57):
Yeah. So this is the s same reading as it's reading here,

Peter Kavounas (02:54:00):
Then it's probably, so it's probably

background audio 6 (02:54:01):
Gallons per

Peter Kavounas (02:54:02):
Probably, let's see. It should have, its measuring units. It's actually measuring pressure. Yes. So it's measuring the pressure that the water is in the pipe. If there is a flow meter, I don't want to mess with it.

background audio 6 (02:54:18):
How are you measuring your deposit? How are you measuring your deposit

Peter Kavounas (02:54:25):
Through the flow meter there. Oh, over here? Yeah. Your flow meter guys.

background audio 16 (02:54:29):
Yeah, that's the flow meter right

Peter Kavounas (02:54:31):
There. That's

background audio 16 (02:54:31):
Just the pressure. The pressure coming

Peter Kavounas (02:54:33):
In. It's the pressure of the pipe, the valves

background audio 16 (02:54:36):
Keeping back

Peter Kavounas (02:54:37):
Pressure up. So is the flow meter, is it fair to say it's 975 gallons per minute going in? Correct. Okay.

background audio 16 (02:54:44):
Technically that's a backwards flow, so that's why it reads

Peter Kavounas (02:54:46):
Negative. That's why it's negative. Very good, thank you. Is it under

background audio 16 (02:54:48):
Pressure or is it pressure down to the valve

Peter Kavounas (02:54:51):
That, see if it

background audio 6 (02:54:52):
Were, okay, so if this is how you're keeping track your deposit right

Peter Kavounas (02:54:57):
Now. Remember our talk

background audio 6 (02:54:59):
And this is reporting back to what? The treatment plan or back to you?

Peter Kavounas (02:55:03):
Well there I remember everything is instrumented, supervisory control and data acquisition. So Monte Vista collects this data, they report it back to us, we put it in our database and we track of everything, every drop of water that goes in or out of the basin. So when they solve their sludge problem, their sludge drying problem at AGU decos, they'll be able to provide more water for recharge so we can put more water in through a s r wells. Because this water now has come through that treatment plan.

background audio 6 (02:55:41):
But right now they're meeting all their needs because Absolutely.

Peter Kavounas (02:55:44):
Built out. Absolutely.

background audio 6 (02:55:44):
Absolutely. There's nowhere else to build. No new

Peter Kavounas (02:55:46):
Homes coming.

background audio 6 (02:55:49):
And what's the function of this right here? Is this like a pressure?

Peter Kavounas (02:55:53):
Probably a backflow. I would think that they probably blow off water

background audio 6 (02:55:59):
Or air. This the pressure release

Peter Kavounas (02:56:03):

Air, air,

background audio 6 (02:56:04):

Air, air release. Yes. Air release.

Peter Kavounas (02:56:07):

High points in pipes, trap air. So when you have water coming in, you probably have this in an open position to blow air out so there's no air in the pipe. So it's a neat What's your step? It's a neat little design.

background audio 6 (02:56:23):

Yeah. Very compact.

Peter Kavounas (02:56:24):

Very compact.

background audio 6 (02:56:24):

Miniature form.

Peter Kavounas (02:56:26):

Yeah. So this isn't a report that was just approved. This is the recharge master plan update they have. You'll see in the report that's coming to you, the four wells, this is the well that we're at now. It's injection capacity is a thousand G P M and it's just about that now. And if it ran all the time, it could put 1,613 acre feet a year in and it can pump twice as much on the way

background audio 6 (02:56:54):

Out. So 13 acre feet a year. So of an acre foot can

Peter Kavounas (02:56:59):

1600, 1600 acre feet

background audio 6 (02:57:01):

A year, 1600. So if an acre foot provides for family board for a year, it only serves 1600 people.

Peter Kavounas (02:57:09):

It would serve

background audio 6 (02:57:11):

An acre foot will serve

Peter Kavounas (02:57:12):

An acre foot will serve a family. Two families of four

background audio 6 (02:57:16):
Families Of four. For a year. For a

Peter Kavounas (02:57:17):
Year.

background audio 6 (02:57:18):
So then this will serve

Peter Kavounas (02:57:20):
3,200 people. 3,200 families.

background audio 6 (02:57:22):
3,200 families.

Peter Kavounas (02:57:24):
So you can bank through this one. Well, you could bank enough water in the basin for 3,200 families for year. The storage of the basin is one of the most remarkable resources to the region. Imported water can be at 80 or a hundred percent one year. It can be 5%. The next. This under our feet is where you can put the extra water when you have it. What we're putting in now is above and beyond. It'll be available for Monte Vista customers in future years of drought

background audio 6 (02:57:58):
For a shortage in the

Peter Kavounas (02:58:00):
Future. Tremendous resource. The storage and the storage management in Chino Basin, which is part of the recharge the O B M P are to me the most value added for all the stakeholders is how do we make it so that we put water in the right places away from contamination in places where water can be put in easily and we can take it out so everybody can use it and not cause any other effects. Help with subsidence, not cause any damage with water quality Storage management. Is that again, the greatest benefit we can offer to the parties. So this iss, this

background audio 6 (02:58:44):
Is why it should be encouraged.

Peter Kavounas (02:58:45):
Yes.

background audio 6 (02:58:47):
If you're going to sustain the resource, you've got to encourage that savings. Just like if you would for your retirement plan.

Peter Kavounas (02:58:56):

And that's what Andy was talking about earlier. When you have these legislation going through for water use efficiency, everybody can conserve everybody, use less. That's great. That lowers demand. And at the same time it lowers natural recharge into the basin. So we need to find ways like these, like this well here and others like it to put water back in the basin so we could have it for the future.

background audio 9 (02:59:22):

Call that artificial recharge.

Peter Kavounas (02:59:23):

Artificial recharge.

background audio 9 (02:59:28):

I wanted to make one other point about monitoring because these wells are really, are only eyes into the subsurface. And so this is where a lot of our monitoring data comes from. Obviously we're measuring what's going in and out in terms of the water, but we're also have the capability of collecting samples of that water that's coming back out.

background audio 6 (02:59:52):

How you collect the sample,

background audio 9 (02:59:54):

The little right there valve. Okay. And so you come with bottles and fill up the bottles, they get sent to a clinical laboratory and they analyze the water quality.

background audio 6 (03:00:06):

You're collecting samples that are going out, not going in. What's going in?

background audio 9 (03:00:11):

Yeah, but I'm sure there's sampling going on at Awa Vallejos on what the quality of that water is too. But yeah, on what's coming out, we collect those samples. That's a tremendous big effort that's done by not only the water agencies but by water master. It has its own sampling and analysis program. So we measure water quality and then there's locations over here at the wellhead where we have sensors or we come here periodically and measure the depth to groundwater in the well. And we track that over time to see how the water levels the supply in the aquifer is changing over time. So it's really at these wells where all of our basic data comes from to help us manage the groundwater data center.

Peter Kavounas (03:01:03):

Andy, you may want to draw a distinction also between production wells and strictly dedicated monitoring wells.

background audio 9 (03:01:10):

Yeah. So this obviously is a production, well that has a pump that can extract water. But we also construct in strategic locations, just a simple well without anything in it. And we can collect samples and measure water levels in more of a static environment that is just sampling that portion of the aquifer.

background audio 6 (03:01:34):

What's the purpose of that if you're doing that here?

background audio 9 (03:01:37):

Well here we have the pumping interference. So this is where you have the cone of depression and the water table because the well is constantly pumping water out and water is migrating towards there. But if we want to get away from the pumping well and understand what's going on in between pumping wells, then we put in monitoring wells.

Peter Kavounas (03:02:02):

Smaller, simpler, cheaper installations, but still give us good data.

background audio 6 (03:02:07):

Like a quarter of the size of this.

Peter Kavounas (03:02:09):

Oh yeah,

background audio 9 (03:02:10):

We'll visit a couple

Peter Kavounas (03:02:12):

Coming up. This is a, well this is about a million dollars to install, not to equip, but to install a monitoring. Well might be

background audio 9 (03:02:24):

Depending on how deep

Peter Kavounas (03:02:25):

It's depending on how deep. It's $50,000. So you can have a bunch of data points in between where you have production lots

background audio 13 (03:02:33):

Watering. Well, doesn't need to go down a thousand feet

background audio 6 (03:02:36):

Cause you're just going to hit the table. Right.

Peter Kavounas (03:02:38):

You're just measuring that.

background audio 6 (03:02:40):

So generally, what is the water cable here in

background audio 9 (03:02:42):

This area? So here we're probably three, maybe even four to 500 feet. Feet. When we get down to the southern end of the basin, the water table's right at the ground surface and we're having groundwater rise to become surface water and exit the basin.

background audio 6 (03:03:01):

And what was the table 30 years ago, 40 years ago?

background audio 9 (03:03:05):

Deeper. It's recovered since we've, we've had the adjudication, which has controlled the pump since we've had the state water project come in and supply an alternate source of water. So we're not completely dependent on groundwater. So there's been some recovery of groundwater levels and now we're fairly stable under the judgment. Now we're controlling where water levels are right where we want it to rise and where we want it to lower. The groundwater management is largely a control of water levels across the basin. We want higher water levels where subsidence is occurring, where we can have lower water levels in the southern end of the basin. You don't want water levels to get really high because then that water's flowing out of the basin into the Santa Ana river. So we're purposefully controlling lower water levels there in the southern end of the basin. So yeah, a big part of the O B M P is controlling the groundwater levels.

background audio 12 (03:04:11):

Water still runs downhill. So the seven and eight feet on Pine Avenue is still about seven to eight feet and you're in the water table closer to the dam. Then you have a storm and then you have a lot of water.

background audio 9 (03:04:32):

So the way you control water levels is control the stresses, the pumping stresses and the recharge stresses. That's the way you control the groundwater

background audio 12 (03:04:41):

Levels. Did you mention what you taught me about subsidence? We have areas in our basin where we have subsident. Yeah,

background audio 9 (03:04:49):

We're going to talk about

Peter Kavounas (03:04:50):

That. Yeah, at lunch we'll be at a yellow park and we'll talk a lot about that. So any questions about this installation? No. Okay. I think

background audio 7 (03:05:00):

You've answered them all.

Peter Kavounas (03:05:02):

So our next stop is the conservation district. We're going to look at the Montclair basins. There's a restroom there for a restroom break. Nice clean facility. So we'll be there in about five minutes and go from there. We good? Alonzo? At the end of the day, let's make sure we give Ruby all the photos and send so she can send them to the clerk. He's very happy and wants a copy of the photos. They're operators at Monte Vista have been exceptionally helpful people for us. Very nice to work with. Very pleasant, very knowledgeable.

background audio 12 (03:06:10):

You guys have a great day. Thank you. Appreciate it.

background audio 7 (03:06:22):

Careful.

background audio 9 (03:06:23):

Well that was nice of them, but

Peter Kavounas (03:06:25):

Stop by. Yeah, they're super, super helpful.

background audio 12 (03:06:30):

30 years of experience.

Peter Kavounas (03:06:32):

Oh my god, these guys are great.

background audio 7 (03:06:37):

You want to make sure nobody was turning knobs?

Peter Kavounas (03:06:40):

Yeah, they're a little skittish about that. No, but we came by here once a couple of weeks ago just to make sure it was worth a while to bring you here. And it was the same thing. They showed up. They're just super cordial, hospitable, just wonderful people. I do have one request of the group. If we use the restroom facility at the conservation district, if the judge needs to use the restroom facility, we'll let the judge go in by himself and then anybody else can go in after.

background audio 6 (03:07:25):

Well that could be dangerous.

background audio 9 (03:07:29):

Do not, I promise. Okay.

background audio 6 (03:07:36):

Sorry to throw that out.

Peter Kavounas (03:07:37):

Okay. We'll scrub that from a transcript.

(03:07:45):

So the conservation district is really interesting to me personally. It's a district that was created in the fifties. The idea was conserve water and that's why it's called a conservation district. So they have the recharge basins right along Baldy or San Antonio Creek, and they can take storm water there. San Antonio Creek can also take water from the Rialto feeder so they can take imported untreated water. And some of them can also take recycled water if they're not too close to pumping wells because department of drinking water regulates how close a drinking water well can be to recycled water being recharged.

background audio 6 (03:08:37):

So is the Mon Vista district, are they taking the water that runs off the streets here and using it or are they just, where's that going?

Peter Kavounas (03:08:48):

That's storm drain water and storm drain water ends up in the channels and it can be recharged in recharged basins that we consider that to be part of the native yield of the basin. There is their treatment plant, by the way, and another one of their A S R wells.

background audio 6 (03:09:08):

A lot of s

Peter Kavounas (03:09:09):

Yeah.

background audio 6 (03:09:11):

So they are using the stormwater?

background audio 9 (03:09:14):

Yes.

Peter Kavounas (03:09:15):

The basin stakeholders get the benefit of stormwater it

background audio 6 (03:09:19):

For some reason. I just thought that that water was wasted, went out to the sea.

background audio 9 (03:09:24):

Well some of it does. That's a big issue is because it all comes rushing at once and so a lot of it does exit and down to product basis. So we try to capture as much as possible. And that's a lot of what our recharge projects are all about, is trying to improve our ability to divert and then store and recharge that stormwater.

background audio 6 (03:09:48):

But that's more expensive to treat because of the chemical pollutants.

background audio 9 (03:09:53):

Yeah, it's actually really good quality water really. It might have some of those oils and pieces, but again, when it goes into the recharge basins, the soil kind of filters it out By the time it makes its way to a, well, it's really high quality water clays in the soils can really absorb a lot of contaminants apparently.

background audio 6 (03:10:24):

Well it's like you said, the earth is a natural filter

Peter Kavounas (03:10:27):

And the microbes in the soil also chew up a lot of the unwanted things. Conservation as a concept has changed over time, at least in my opinion. When the conservation district was formed, the idea was conserve the natural resource as in capture it and recharge it. Conservation today typically means use less of, it's more of the consumer side than it is on the supplier side. And what you'll see in the conservation district here is a very robust education program. They have a remarkable demonstration garden of how to use native plants that have very low water demand of a lot of all the local schools actually come through here for school field trips.

background audio 6 (03:11:29):

That concept is limited to water. It's also across the board and other things like California, the Department of Fish and game is now called the Department of Fish

Peter Kavounas (03:11:41):

And Wildlife. Wildlife.

background audio 6 (03:11:42):

So if there was a conservation effort to it when it was initiated, obviously, but the focus has been away from gang as a shooting and killing them to preserving

Peter Kavounas (03:11:53):

Yes. Protecting environment. That's why they changed

background audio 9 (03:11:56):

The wildlife.

Peter Kavounas (03:11:59):

So their headquarters are to the right, their free public garden is just beyond their building. You go through their building, you can get to their free public garden. There's a park in front of us, so we'll step out of the van here and the restroom is straight through the double doors if anybody needs to use it. And we'll wait a few moments to make sure. Yeah, we'll make sure everybody has had a chance to and then we'll walk over to the recharge basin. Oops, sorry about

background audio 6 (03:12:32):

These

Peter Kavounas (03:12:32):

Right here. Right? They may or not be open please. You can check. Okay. Yeah, it's closed. So if you walk through the double doors and to the left,

background audio 15 (03:12:51):

Those are locked.

Peter Kavounas (03:12:52):

They are locked. Bob, can I ask Kent, Bob, can you please wait until the judge is finished? Yes, I'm going to. Very good. Thank you.

background audio 15 (03:13:08):

You got nice. I made the map

Peter Kavounas (03:13:11):

Way together. You made the map. But now they're going to have to change the map.

background audio 15 (03:13:15):

We won't call

Peter Kavounas (03:13:15):

That. Just make it just a little smaller. Smaller.

background audio 15 (03:13:19):

We'll just give 'em a little sticker for the

Peter Kavounas (03:13:20):

Top. Yeah.

background audio 15 (03:13:23):

Who operates your wells? You have staff? Yeah.

Peter Kavounas (03:13:37):

Do they have alejo here? I don't think they do. If they do, no, they don't have it here. That is so bizarre.

background audio 15 (03:14:22):

I think this is supposed to be the Corona airport. Well, oh, maybe that's just

Peter Kavounas (03:14:28):

The dam. It's just the dam. Yeah. That's got to be Chino. Yeah. Chino, Ontario. What's that one? We drove past it.

background audio 15 (03:14:35):

Yeah.

Peter Kavounas (03:14:36):

Cable. Cable. Oh, cable. Yeah. Okay.

background audio 15 (03:14:41):

Where no-name brewery is.

Peter Kavounas (03:14:42):

Yeah. And a nice little cafe at the airport too. I'm still flashing

background audio 15 (03:15:00):

Big boulders.

Peter Kavounas (03:15:30):

Hey Andy. Yeah. Can I ask you, I'm going to use the restroom real quick. Can I ask you to maybe show judge the display here?

background audio 15 (03:15:37):

Oh, hi Liz.

Peter Kavounas (03:15:52):

Oh, sorry

background audio 15 (03:16:18):

For everybody.

background audio 6 (03:16:20):

Yeah.

background audio 9 (03:16:23):

You guys notice the spiders?

background audio 6 (03:16:25):

Oh yeah, we have. There's this huge spider. In fact, I have a picture of one on my phone. It's called the, I think I'm called the Western Brown. But they're gigantic and they build huge webs that I'm always walking into and they're really easy to see at night because they come in at night and they'll be there early morning and they actually are venomous. Oh. So I'm always looking around to clear 'em out. Right. Yeah.

background audio 9 (03:17:05):

Well apparently this year with all the rains and all the insects and spiders are just doing really well. And so yeah, I've noticed,

background audio 6 (03:17:13):

I've noticed a ton of them this year.

background audio 15 (03:17:16):

Mosquitoes are doing very well.

background audio 9 (03:17:18):

Mosquitoes are doing well.

Peter Kavounas (03:17:20):

We got a lot too.

background audio 9 (03:17:22):

There's a spider that's been my slider to go in my backyard. Has been building a big web there every morning and I open it up to go out and I'm like, you're there again. Knock 'em out

Peter Kavounas (03:17:32):

Of the way. Got a new victim every time they put

background audio 9 (03:17:34):

Back the very next day,

background audio 12 (03:17:36):

My house

background audio 9 (03:17:37):

Big. Yeah.

background audio 6 (03:17:38):

Yeah.

background audio 12 (03:17:40):

They're busy eating.

background audio 6 (03:17:41):

Yeah, they

background audio 15 (03:17:42):

Are. When it starts getting cold here though, they'll go around. Oh yeah.

background audio 12 (03:17:55):
You've got a lot of mosquitoes this

background audio 15 (03:17:57):
Year. Yeah.

background audio 6 (03:18:00):
Here's one I took

background audio 15 (03:18:02):
That was

background audio 6 (03:18:02):
In front of my house on

background audio 9 (03:18:04):
Our porch. That's them.

background audio 6 (03:18:07):
They're giant. And that thing's like this big isn't literally gigantic.

background audio 12 (03:18:12):
I was just amazed. I mean, I come from the farm and I've seen spiders, but

Peter Kavounas (03:18:27):
So while we're waiting for Brian for orientation purposes again, we're here at the conservation district. We're going to look at this basin. It's right on the San Antonio Creek channel. It can take water directly from storm water. Obviously it can take water from the Rialto feeder as well as from treated water, I suppose if it had to. But you can see these lined up along the creek. You can see the college heights up, other recharge basins. One thing that is interesting to me is that this is from here on up is the puffier fatter part of the aquifer. And that's where most of the recharge makes sense. When you get down here, you get shallower water levels, you get closer to Prado, you get the opportunities for recharge aren't as great. So we'll see. We'll just walk up there, take a quick peek and when we transition we'll be going to just about where you're standing, which is Go over here

background audio 7 (03:19:33):
First though,

Peter Kavounas (03:19:34):
Right? Oh yeah. We're going to drive. Thank you. Andy. GE Flatiron treatment facilities right about here. Ely Basins are right here. And then we're going to go on south from here. Look at a site of subsidence for Chino, our monitoring equipment there. And that's where lunch is about. I'm guessing about half an hour from now. Are we doing okay?

background audio 7 (03:19:57):

Yes. Thank you for the

Peter Kavounas (03:19:58):

Stops. Sure. Alright, let's, we'll walk up the fence here and you'll see the basin. It's also part of the education theme of the conservation district. They teach people along with the plants how to manage, how they manage a recharge basin.

background audio 7 (03:20:33):

Hello. Hello. Hi.

Peter Kavounas (03:20:38):

Hi. Hi.

background audio 7 (03:20:45):

He's getting ready to push

Peter Kavounas (03:20:46):

You. Yeah. That's how messy started. Another group of very people oriented people that work here. Very hospitable. We just had a little, I Uua water master and stakeholders barbecue here in the summer and their exhibit garden. It's

background audio 7 (03:21:21):

A nice little park.

Peter Kavounas (03:21:22):

It's a great park. And I think next weekend they have a pumpkin. Oh, here we go. Saturday, October 7th, water-wise garden and pumpkin Fest. We typically have some staff that want to come and volunteer to run the booths and provide education from our point of view. So this is, I believe the Southern, most of the Montclair basins, the others just follow the channel. The inlet, you can see straight ahead. Channel is running off to the left. The basins, Andy, am I correct? The basins have an overflow from one to the other?

background audio 9 (03:22:10):

Yeah, they spill. There's a spillway going from, this is number four is the most downgrading. It's three, two and one above and they all spill in series there's,

background audio 15 (03:22:26):

There's a well up there. Monte

Peter Kavounas (03:22:27):

Vista. Well it's a Monte Vista. Well,

background audio 9 (03:22:29):

New treatment

background audio 15 (03:22:31):
That

background audio 9 (03:22:31):
They've installed there. I would suspect

background audio 6 (03:22:42):
This

background audio 15 (03:22:42):
Retention on

background audio 6 (03:22:46):
Left. A lot more natural features to it as opposed to the sense

background audio 9 (03:22:57):
They do get,

background audio 15 (03:22:59):
But maybe

background audio 9 (03:23:01):
Up on the sides there's still

background audio 15 (03:23:03):
Some vegetation.

Peter Kavounas (03:23:06):
That's a good question.

background audio 9 (03:23:10):
These basins percolate really well. Very fast Percolation rates, they do decline over the course of the season because the water coming in has some binding

background audio 15 (03:23:21):
Through

background audio 9 (03:23:21):
Settle out. So we'll see over the course of the season,

background audio 15 (03:23:26):

Preparation rates will, so that's

background audio 9 (03:23:36):
This year interestingly

background audio 15 (03:23:40):
Interrupted

background audio 9 (03:23:41):
Some of the ability to get

background audio 15 (03:23:43):
In there and clean

background audio 9 (03:23:44):
It out in the middle of the summer. That's when they like to do it because the storm, once a year is back there.

background audio 6 (03:23:54):
Afternoon notice there's snow,

background audio 15 (03:23:56):
There's no water

background audio 6 (03:24:00):
Because the San Jose basin is a natural

background audio 15 (03:24:02):
Micro, but it's so important

background audio 6 (03:24:09):
And to eat too. There is something, I just thought it

background audio 15 (03:24:14):
Was fish

background audio 6 (03:24:16):
Mosquito because they do have mosquito fish.

background audio 15 (03:24:20):
They use mosquito frogs or whatever.

Peter Kavounas (03:24:25):

I think these do run dry at some point. San

background audio 6 (03:24:29):
Definitely does. Right.

Peter Kavounas (03:24:31):
So yeah,

background audio 15 (03:24:34):
They have

background audio 9 (03:24:34):
To dry out in order to maintain

background audio 15 (03:24:36):
Them.

Peter Kavounas (03:24:40):
Okay. I hate to say you've seen one recharge basin. You've seen 'em all. But they all do have a little different past. And I think this was an old gravel pit.

background audio 6 (03:24:54):
Yeah,

Peter Kavounas (03:24:55):
They got mine. Yeah, I got mine out. Now you have a hole in the ground, so there's a convenient next use. So

background audio 6 (03:25:03):
That was a good second life for it

background audio 12 (03:25:08):
Really.

background audio 9 (03:25:11):
Yeah. Yeah. Another thing I learned about water conservation from here is that they don't cut the lawns down

background audio 12 (03:25:25):
Low.

background audio 9 (03:25:26):
Low. They let it grow because it keeps more shade on the soil. That's an

background audio 6 (03:25:31):
Operation.

background audio 9 (03:25:31):
Yeah. Kind of interesting. And you can see they leave a lot of their cuttings here too.

background audio 12 (03:25:37):
Doesn't become hard

background audio 6 (03:25:38):
Nitrogen for to grasp mulch. And

background audio 9 (03:25:44):
This is a really educational facility

background audio 6 (03:25:47):
If you ever get a chance to go in and tour. Yeah. They had a whole wall wallboard water and where the area gives this water. Very interesting and wanted to read it, but I

Peter Kavounas (03:26:33):
You go,

background audio 6 (03:26:34):
That bleeds away

background audio 9 (03:26:36):
Here.

background audio 6 (03:26:36):
That's very cool. Yeah. Instead of letting me go somewhere else, you keep, thank you sir. Watch yourself,

Peter Kavounas (03:26:56):
Watch yourself. B

background audio 9 (03:27:00):
Permeable pavement.

background audio 6 (03:27:03):
The color.

background audio 9 (03:27:06):

It has floor spaces that allow the water to percolate in. Thank you. There's another water conservation district in Riverside County, which you want any water has a lot of that too.

Peter Kavounas (03:27:21):
Do you want any water? Brian? Can I impose on reach a bottle of water?

background audio 9 (03:27:28):
Sorry.

background audio 6 (03:27:31):
Now interestingly, this is not that permeable gravel. If you look outside

background audio 9 (03:27:36):
Right here. And it was weird because they just paved and thank you. I don't know. I thought

Peter Kavounas (03:27:45):
Maybe it was permeable. Thank you Brian. And

background audio 9 (03:27:47):
Then they repaved

Peter Kavounas (03:27:48):
Over it. So

background audio 9 (03:27:50):
I dunno what happened there. Here's their gardens out

background audio 10 (03:28:02):
There.

background audio 9 (03:28:04):
Very nicely done. What city are we in?

Peter Kavounas (03:28:09):
Mont. This is Montclair. So now we're headed toward the side of the former GE Flatiron plant.

background audio 9 (03:28:53):
And that was where they made this flat iron,

Peter Kavounas (03:28:56):
Which is something that I felt so naive. I was like, you mean they had a factory just to make those? Well, apparently they did. So I was like, I never thought of that. But they did. And apparently it's not the only site in the United States where flat irons were made that actually caused pollution because of the

platting and the solvents that were used on the site. So don't expect to see a factory there. What you'll see is a nondescript, kind of like a little house that houses the treatment facility from a historical point of view, the T c E and chromium, T C E, I think is Trichloroethylene were detected in 1987 in monitoring wells. And it took a few years. The regulator was the regional water Quality control board. And after going through design and permitting and approvals,

(03:30:16):

They installed two wells to pump the contaminated water. And the treatment was with G A C granular activated carbon and ion exchange ion exchange is for chromium. So it exchanges an ion of chrome six with an ion of salt. That salt then becomes part of the disposal, part of the brine that needs to be disposed. And when they began operating in 96, they were discharging the water in the storm drain, which led past Ely basins and so on. And that continued for about 10 years or so. And then later about 2010, they built three injection wells. So they pump the water, they treat it and they put it back in the ground. And because they do that, the water is no longer part of the stream in the channel. Now the Ely basins can be used for recharge.

background audio 6 (03:31:24):

When did they detect that?

Peter Kavounas (03:31:25):

You said 87.

background audio 6 (03:31:26):

87.

Peter Kavounas (03:31:28):

There are two agencies, state agents

background audio 6 (03:31:31):

Because they just started looking for it or that's because it out.

Peter Kavounas (03:31:37):

I think that's the era where environmental monitoring and regulation just started ramping up. And the regional board and department of Toxic Substance Control started gathering data. And I think the Superfund Act when was rcla, that was 70. Right. And so that just sort of started this whole, let's protect the environment. Let's monitor and let's regulate and let's clean up,

background audio 9 (03:32:08):

Develop the analytical methods to detect these things. And then started doing the monitoring and it starts showing up everywhere. And prior we were probably drinking it away.

Peter Kavounas (03:32:31):

So once again, it's a drive. It's a drive by. You won't see anything. Wow. But you will from time to time come across either mention of an industrial pollution plume or industrial cleanup site and wanted you to have a visual. That's what one looks like.

background audio 6 (03:32:52):

Actually. The whole process. Well really good develop over a long period of time. Agencies are involved

Peter Kavounas (03:33:10):

And you can imagine, and

background audio 6 (03:33:11):

People just take it for granted.

Peter Kavounas (03:33:12):

Yeah. And you can imagine the battles, right? In the beginning when they told ge, well you have to clean up. They're like, no, we don't. And here's the data. We will get our own data. And they had to be pressed back against the wall. I lived a lot of that when I was working in Glendale. We had a lot of pollution. It was actually a Superfund site and we'd have meetings with the polluters and we're like, well, we have a treatment plan that you're responsible not only to build, but to maintain, to pay for the operation and the expansion. Because remember, expansion is a thing that the water industry has to live with more treatment trains for more things that are detected and known to be bad for our health. And they don't see it as their mission. And so they see it as an additional expense. So they typically fight it. But eventually we'll get routine when you'll see, when you will see the state of the basin report next year, as I mentioned, we'll file it early with the court early in 2024. You'll be able to get a great review of water quality challenges in the basin industrial as well as the more broad total dissolved solids and nitrates, challengers.

(03:34:58):

Andy, anything you want to add about the coordination with the regional board and other plumes? That is

background audio 9 (03:35:07):

One of our program elements in our O B M P is to coordinate with the regional board. They're not very well staffed and so Water Master has really helped in collecting data, sharing data with the regional board. The regional board shares data back and we really have developed a collaborative relationship with 'em and not only for these sorts of groundwater plumes that were caused by point source contamination of the aquifer, but in our salt and nutrient management, which we're going to talk more about later when we get down to the desalt that they are the regulating agency on salt and nutrient management as well. So just groundwater quality in general. It's regulated by then. And the O B M P has called for water master to also try to manage groundwater quality too. So it's a natural relationship between the water master and the regional board. Peter had come up with a really good idea that we call Chino Basin Day, where once a year we have a meeting with the regional board staff and they love it. Regional board loves it, but we just sit down and spend a whole day just talking about all the different things that are going on, the new emerging contaminants and our salt and nutrient management plan and how that's coming along. And so it's, yeah, it's I think a real positive outcome of our Optimum Basin Management program

Peter Kavounas (03:36:59):

In that day. We include the Chino Des Salter authority that is also a separate J P A that has its own management. So they're included in that day. I U A staff and management also attend because they run

the regional wastewater plants that are regulated by the regional board. We invite sapa, the Santa Ana Watershed Project Authority, which is kind of some would say a paper entity, but they have a role to play within the entire watershed and the regional board staff that deals with all of that, it's like the three mice and the elephant. Their staff has a job to do over here. Somebody else may have a job to do over there, but you pull 'em all together in one place in one day, then their jobs make more sense to them. And their decision-making is more consistent throughout. We understand their needs better. They say, I wish I had this reporter. Can you give me some data on that? So it just really works to enhance the relationship between the two. The regional board and D T S C, they maintain on their websites, they maintain databases of all the cleanup sites everywhere.

(03:38:44):

So as part of the service for the parties, we gather all the latest information and developments on our cleanup sites and provide them every six months complete update on all the reports, on all the site, all the reports, on all the cleanup sites everywhere.

background audio 9 (03:39:03):

Don't know why all this water's rushing down there.

Peter Kavounas (03:39:06):

It was like that last time we were here. Yeah. We should tell the Monte Vista guys.

background audio 9 (03:39:18):

Yeah, capture that.

Peter Kavounas (03:39:20):

Yeah. No, there's something wrong. Somebody's paying for it too. This area reminds me a lot of Burbank. When Lockheed was big and thriving in Burbank, everything around it was homes like these for all the people that worked at Lockheed. And so to find a facility like GE Flatiron in here, it just sort of has the same, here's the big industry that supports the area and the homes that everybody who works there where they live,

background audio 6 (03:40:25):

Well, the aviation industry has for the growth of Southern California after World War ii, the Don Douglas plan, which

background audio 10 (03:40:41):

The,

background audio 6 (03:40:42):

The C 17 one time kind of like grapes. We the largest aerospace industry in the world right here in Southern California. And now there's not one plane that's built out of Southern California. Went from the biggest to zero to

Peter Kavounas (03:40:56):

Zero. Yeah.

background audio 6 (03:40:58):

Long Beach plant closed.

Peter Kavounas (03:41:03):

So this would've been the site of GE Flatiron plant, as I said, nondescript. And they built the treatment facility and put it in a house that kind of blends kind of doesn't. And this is what it looks like today. Two extraction wells, three injection wells, and a typical treatment process. This man came here today just to open the gates for us so we could drive through. Very grateful to them. Not much to see in there. And we're not going to stop. We're not going to get out of the van again. Wanted you to have a visual of this is where it is and what one industrial cleanup site can look like. Fairly well contained. Small footprint,

background audio 6 (03:41:54):

Not very big.

Peter Kavounas (03:41:55):

Not very big small

background audio 6 (03:41:56):

Footprint

Peter Kavounas (03:41:58):

From a water master accounting point of view. It used to be that when they would pump, treat and waste the water down the stream, we would charge them. We would have to replenish the basin. They didn't have the right to produce. Now that they reinject the water, they don't have to pay for replenishment.

background audio 6 (03:42:15):

That's kind of blending well with the neighborhood.

Peter Kavounas (03:42:18):

It does. Yeah. I

background audio 6 (03:42:19):

Mean, they didn't have to put those walls around. It could be just big tanks.

background audio 9 (03:42:24):

There are a lot of monitoring wells dispersed around the area here that are part of that facility to monitor the plume and the effectiveness of the cleanup solution. All that data we collect and add to our databases to better understand groundwater conditions

background audio 6 (03:42:45):

For that plume. What's that? Is there an end date for that plume or is it pretty much taken care?

background audio 9 (03:42:51):

It is typically based on the monitoring data itself. And what is the monitoring data saying about

background audio 6 (03:42:58):

The effectiveness

background audio 9 (03:42:59):

Of the cleanup. And so then the regional board requires them to produce quarterly and annual reports and the regional board will read those and then maybe one day make the decision, okay, we can close the site.

background audio 6 (03:43:15):

And when did that plant close?

background audio 9 (03:43:18):

Boy, I don't

Peter Kavounas (03:43:19):

Know. It must've been the eighties. The eighties, yeah. It must have been

background audio 6 (03:43:23):

The gift that keeps on giving. Yeah. Right. And how long was it an operation?

Peter Kavounas (03:43:28):

I don't know, probably decades before. But my experience with cleanup sites, some perchlorate sites up in Santa Clarita, you're looking at a minimum 30 year cleanup. And the challenge is who's going to keep paying for it? Well, in the case of ge,

background audio 6 (03:43:45):

Okay, that's from a Superfund that

Peter Kavounas (03:43:49):

This is not monetary fund. This isn't Superfund. Oh, it's not? No. Superfund is an e p a what's name for ge?

background audio 9 (03:43:56):

GE is the how

background audio 6 (03:43:58):

They possibly have the money to do that.

Peter Kavounas (03:44:02):

That's into their profits. So the challenge with, if you have an industry like ge, okay, they're going to be around for a while, but Santa Clarita, you had Whitaker Mite that was a munitions manufacturer that no longer exists. How do you go after them? Right, exactly. And fund 30 plus years worth of cleanup.

background audio 6 (03:44:23):

Is there federal money available for

Peter Kavounas (03:44:25):

That? There can be, yeah. But generally you go after their insurance, which trails their activities.

background audio 9 (03:44:36):

Well, Chris, you might want to speak to some of the groundwater contamination in Pomona that we don't really know who the responsible party is for that, but the city's stuck with the cleanup cost.

background audio 6 (03:44:50):

How could you even track something like that, especially if you can't trace it back to a particular source. I'm sure there's something with the flat iron you said, oh, this is where this came from, down to one. It's really loud in the back.

Peter Kavounas (03:45:03):

Can you turn the air down to one Alonso? Yeah, thank you.

background audio 6 (03:45:07):

Yeah, I was just saying that it could be really difficult to track if there's not a specific chemical marker, which I'm assuming there's some way that they knew that the flat iron would leak examin contamination here. There must've been a physical chemical that said, Hey, that's from that plant. They're the only people that produced that, but have something. I don't know if it's more general, it'd be hard. The city recently won a case with S Q M Chlorate and Malone. We won 30 million. Actually, I just received the money. I think it was last week. That was just, as you mentioned there a marker in the chemical that was natural form of chlorate that was being imported from Chile and fertilizer from that common desert. Wow. Other contaminants that we deal with beyond chlorate are nitrate. The M C L is likely to be established in the couple months.

Peter Kavounas (03:46:12):

What's the M C L? No, what is an M C L?

background audio 6 (03:46:18):

The maximum contaminant level. Okay. So the speed limit, in essence for the chemical in the water, we have 10 parts per billion. The city will certainly be impacted by that M C L and have to construct treatment. We're currently working on a preliminary design report to identify what are some of the options to remove the chemical from the water. There's also, I'm sure you're well aware of A P F A ss,

Peter Kavounas (03:46:51):

Have you heard of P F A ss? No. That's the latest chemical that has been studied, found to be harmful to human health and needs to be removed from portable water.

background audio 6 (03:47:05):

Where's it come from?

Peter Kavounas (03:47:07):

Primarily it comes from fireproofing.

background audio 6 (03:47:15):

Yeah. Firefighting foam non-stick in any non-stick type of surface stain resistant chemicals. It was a three M product primarily that has been used and that has been, I'll say in large part litigated. And there's in essence a fund that you can look to receive funds from. And so the city will be looking to do that shortly called the U C M R. The unregulated contaminants that were required to testate ca says, Hey, here's this list of contaminants we would like for you to see if there in your water so that we can understand how ubiquitous this is, what are the levels of the chemicals in the water and so on. And P O Ss is on that listing that the uc of our list, and we believe that will be impacted by pfos. So the preliminary design report that we're working on now is intended to address both PS and Chrome six.

(03:48:29):

So we can get both of those knocked out, so to speak right away. And so we can address the encampments. So in the situation where you have a company that's maybe no longer in business and bb d, the insurance company is no longer in business or maybe they didn't have insurance, are there any state or federal monies that you would look to? Yes, there are. From time to time grants. An example is 1 2 3 T C P. That's a chemical that recently impacted one of our largest producing wells and we receive one $6 million brand. However, the treatment costs are just under probably two and a half million dollars. So obviously we'll have to bridge the gap between the cost of the plan and the grant funds received Chrome six, though we don't know of any point source in our area where that might have been the cause. So we'll be likely funding that through rates to our customers. The P F A SS also doesn't completely cover all of the expenses, so I'm hoping to get maybe 50% of the cost for P FFO ss, but I don't know that it's actually going to cover that now.

Peter Kavounas (03:50:03):

So you get the idea that there is the water quantity aspect of the business and then there is the water quality aspect of the business. As Chris said, there is this federal law, the U C M R, which is always looking ahead and every five years there's a new list of chemicals that agencies are supposed to monitor. And the E P A collects the data while they're being studied for effects on human health. Pause for a second. ELI Basins. To our left and to our right, the far right is Eli Basin. Number one. Immediate right is Eli Basin number two and to the left is Eli Basin number three, one and two are owned by the San Bernardino County flood control district. And number three on our left is owned by the conservation district. All three percolate really well and our good producers, they take storm water, they take recycled water and are sort of the lowest part in the basin. What we want active recharge like that.

background audio 6 (03:51:11):

So something I noticed here is a lot of trash in there compared to the other

Peter Kavounas (03:51:17):

Trash and no vegetation. So each facility, it's got its own little unique signature.

background audio 6 (03:51:26):

You see the trash with the stormwater ones. The recycled water obviously doesn't have that. As Peter mentioned, the flood control basin comes trash. Yeah, that's just stuff coming off the street then. Right.

Peter Kavounas (03:51:44):

In some cases there's also the recharge basins, especially a little further up, attract homeless people who make their encampments there. And so on a good storm, usually the material they've collected, shopping cards and everything in them get washed out. Occasionally there are drownings of the people there as well.

background audio 6 (03:52:11):

So if there's an encampment down there,

background audio 10 (03:52:13):

You go out and

background audio 9 (03:52:14):

Clear 'em out right away.

Peter Kavounas (03:52:16):

We try to work with the local police i u A does with the local police. When we see an encampment, we ask them to go remove them, but that's a whack-a-mole equivalent. So to close out the thoughts on water quality, never ending, never ending chase for water, utilities, never ending chase for groundwater basin management because all that stuff begins in the groundwater basin. New regulations always come out. Lower detection technology always coming out, new treatment has to be implemented. So we are now starting to move through, this is technically the ag area, but you'll see a lot of it has already converted, but we're going to move toward Ayala Park and the Ayala Extensometer and Andy will use the maps on the handout maps number four and five. Four is a listing of all the monitoring that is done for Chino Basin and five has a map related to subsidence. So Andy, if you want to, and judge, we can also always take a break too as you need to. I know we're giving you a lot.

background audio 9 (03:53:46):

Where is the monitoring map for?

Peter Kavounas (03:53:49):

Four is a list of all the monitoring.

background audio 9 (03:53:51):

Oh, okay. Alright. Yeah. As far as our, we spoke a little bit up there at the last, well about the monitoring and how the wells are really our eyes into the subsurface and that's where we do most of our groundwater production monitoring, our groundwater level monitoring, our groundwater quality

background audio 10 (03:54:20):

Monitoring.

background audio 9 (03:54:22):

We're also monitoring all the surface water that recharges the groundwater basin too. So that summarizes the groundwater monitoring we're doing. I've mentioned a couple times land subsidence being an issue. Back before the O B M P, and this is in the early nineties, we had ground fishers open up down here in this area that we're traveling to right now. Big cracks in the ground open up. There was even a report of a pond that just drained overnight into one of these fissures to earthquakes or it was just, no, it was related. It was land subsidence. And we've later figured out it was due to too much pumping and too much drawdown of water levels and this draining of the clays, which resulted in the land subsiding in one area, not really subsiding another area and just stretching the ground surface and causing the ground fisure.

(03:55:35):

We call that type of subsidence, differential subsident that can lead to the ground fishery. Don't really hear about that too much. You do in the Central Valley. You hear about it a lot where it's such a severe problem up there. It's changing the gradients and the capacities of the canals that are bringing us the imported water and reducing their flow capacity. So it's a bigger problem up there. But here it was about two and a half feet of subsidence that occurred over maybe a 10 year period and there was some finger pointing going on amongst the parties that your pumping caused the subsidence. And no, it wasn't our pumping, it was something else and there was threats of litigation.

(03:56:33):

And so we incorporated into the O B M P A specific program element, we call it program element four, to better understand the subsidence and what caused it and then to develop a management plan to manage it going forward. It was that important and contentious of an issue that it demanded that we address it as part of our larger groundwater management plan. And so the facility that we're going to go was is a key monitoring facility that was part of our initial investigations and trying to figure out the cause of the land subsidence. And it was just supremely successful. We found an old retired U S G S geologist that was an expert in these types of facilities and he advised us, when I say us, we put together a committee of all the pumpers in management zone one and they brought their technical consultants to the table.

(03:57:40):

And so it was just a really good scientific endeavor. Did you figure out who was liable? What's that? Did you figure out who was liable for Yes, we did figure out what the cause was. And so I'll go over that at the facility in a little more detail. But essentially what it was was the city of Chino Hills had come in and had drilled a number of deep wells that went down into the deepest portion of the aquifer that hadn't been pumped before. And they were trying to exercise their water rights. They exist up in the hills, but they have pumping rights in the basin. And so they came into the city of Chino and drilled these big wells and then they convey the water up to their service area. And yeah, the big argument was really between the city of Chino and Chino Hills.

(03:58:33):

At that point in time, the city of Chino was claiming that their pumping caused the land subsidence in the ground and the city of Chino Hills was not convinced. And so we being the big group, develop the data to better understand what happened and what's happening now. This is back in the early two

thousands and based on that improved understanding, let's develop a management plan. And our management plan really boiled down into what we call it, the guidance level where water master's providing some guidance to the pumpers here on what water levels should we maintain and keep water levels above so that subside more subsidence doesn't occur. And how do you figure that out? Through installing monitoring facilities, improving our monitoring program, and then we ran specific pumping tests where we pumped the deep system and shut down pumping from the shallow system. And then we pumped the shallow system and shut down, pumping in the deep system and we were monitoring water levels and then aquifer system compaction at this monitoring facility I'm going to show you. And that's the way we figured it out. This facility you're going to see is there's a few of them sprinkled across California to monitor this aquifer system, compaction process. This one here is probably the most sophisticated best of its kind. The U S G S geologist that was advising us, that's what he would always say. And he was one of the inventors of this technology back in the forties and fifties when subsidence was first becoming a problem in Central Valley.

(04:00:41):

He was able to utilize all that institutional knowledge and his history and apply it to this facility

background audio 6 (04:00:49):

Here. A puzzle.

background audio 9 (04:00:50):

What's that? It was really kind

background audio 6 (04:00:52):

A detective. Yeah. For you folks,

background audio 10 (04:00:59):

It's

background audio 6 (04:00:59):

Very interesting because it shows the paradigm shift the economy between what once was in agriculture and developed areas and kind of this is like the militarized zone, the transition area between those two

Peter Kavounas (04:01:19):

Borders. Exactly. Exactly.

background audio 6 (04:01:23):

Interesting to see what this looks like in years.

Peter Kavounas (04:01:31):

The long-term outlook is we don't think that agriculture and dairies are ever going to completely leave the area. We do think there will be a portion of agricultural area that will remain. So we don't think it'll be all paved over all houses or warehouses in the future, but it'll probably shrink from what it is now even more.

background audio 12 (04:01:57):
I didn't hear that, Peter, you said

Peter Kavounas (04:02:00):
We don't think that ag is ever going to go away.

background audio 9 (04:02:04):
We

Peter Kavounas (04:02:04):
Think it will shrink a little more from what it is now, but we don't think it's ever going to go

background audio 9 (04:02:10):
Away.

background audio 12 (04:02:12):
Never. I mean ever. No.

Peter Kavounas (04:02:14):
Yeah. Yeah.

background audio 9 (04:02:17):
We're answering through Addison. There's been a change to location for lunch.

background audio 12 (04:02:21):
We're still, I don't know that it's possible

background audio 9 (04:02:24):
The area's taken.

Peter Kavounas (04:02:26):
Are we still going to a yellow park? Yes.

background audio 9 (04:02:28):
Just a different entrance in a different picnic

Peter Kavounas (04:02:30):
Area. Okay, got it. Okay. Somebody has a birthday party there

background audio 9 (04:02:36):
It sounds like. Yes, it's a cold.

Peter Kavounas (04:02:38):

Okay.

background audio 9 (04:02:39):

Oh, is it occupied?

Peter Kavounas (04:02:42):

Yeah. The picnic area's occupied

background audio 10 (04:02:47):

Andy

background audio 12 (04:02:47):

Peter, a good subject. Andy Farming's not going to go away. To your knowledge, all of the new retention basins for 5 66. Okay. Catching all the water, do they percolate or not really?

background audio 9 (04:03:11):

Not really. In the southernmost portion of the basin, our shallow soils are pretty clay rich and the percolation rates are not so good compared to the recharge basins in the northern part of the basin. Yeah.

background audio 12 (04:03:29):

Here's the million dollar question. So we have about 1800 acres of retention base. I have suggested we might want to talk West Orange County

background audio 10 (04:03:44):

Farm,

background audio 12 (04:03:46):

Those retention bases. Your comment

background audio 9 (04:03:51):

Farm, the retention base

background audio 12 (04:03:53):

Farm. The retention base,

background audio 9 (04:03:55):

Huh? I don't know, Bob. There is a talk in these recharge meetings that we have about capturing water in the southern end of the basin and then pumping it back up to the northern part of the basin to be recharged in the facilities. So you

background audio 12 (04:04:15):

Might use it for other

background audio 9 (04:04:16):
Yeah. Storage.

background audio 12 (04:04:21):
Would it be a debate or not really?

background audio 9 (04:04:24):
Well, I think it would be a debate because that costs a lot of money to do something like that.

background audio 12 (04:04:30):
To pop it back.

background audio 9 (04:04:30):
Yes.

background audio 12 (04:04:31):
Where we just throw the seed down

background audio 10 (04:04:41):
And you can see extent the clays would be

background audio 12 (04:04:45):
Lower

background audio 10 (04:04:48):
Because of the nature of clay.

background audio 9 (04:04:54):
Yeah. I think the existence of clays and the shallow soils all the way down here at the southern end of the basin is just to the lower energy environment. It's where all the flood waters historically would accumulate and it would just be like a lake and the clays would settle out and deposit.

background audio 12 (04:05:18):
Chris? Yes sir. Can I put my farming hat on?

background audio 10 (04:05:22):
Yes sir.

background audio 12 (04:05:23):
We have had some interesting numbers in farming some of those lower catch basin, even with the heavy clay and they produce quite well. Interesting. Does that catch you by surprise or No?

background audio 9 (04:05:58):

The ground fishers opened up right in this general area from north to south.

Peter Kavounas (04:06:07):

So Andy, explain if you will, if the whole ground is subsiding, why are there fissures

background audio 9 (04:06:14):

In the ground? Why? Yeah, and that's the differential subside. That's why we will be talking that I was talking about. And the reason one of our main discoveries out of this whole thing was that we discovered an underground barrier to groundwater flow, which was an ancient fault. That's what we believe that exists beneath us here. And so all the pumping that was occurring was occurring over on this side and the subsidence was occurring, but over on this side of the fault, it was insulated from that pumping. And so we didn't have the same water level changes and hence no subsidence. So the land was relatively stable over here, but it was subsiding over here near Central Avenue, hence the differential subsidence and then the cracks forming in the ground.

background audio 6 (04:07:07):

And did they threaten any structures or anything?

background audio 9 (04:07:12):

Yeah. And especially today as all this development occurred, I mean this was all agricultural at one point in time and so yeah, the threat is to the overlying infrastructure. Is that ground

Peter Kavounas (04:07:28):

Fishery at that time, Andy? There were no structures to be threatened.

background audio 9 (04:07:33):

Yeah, it wasn't. There were a few to the north and on prison property down here. There were a few structures that were impacted. But you're right, it was a different land uses here in the early nineties compared to what it's like today. So

Peter Kavounas (04:07:51):

Now Andy will also maybe at lunch talk a little bit about where our subsidence monitoring focus has shifted now, which is in the northern part of the basin. And there are significant structures that we're concerned about things like the tent freeway. And so if you have a similar issue there with differential subsidence under the freeway, that's a problem.

background audio 9 (04:08:24):

So this map in here, and number five,

(04:08:30):

The color shading comes from remote sensing of ground motion. We use radar satellites to tell us about the vertical ground motion. And so the darker oranger areas are where subsidence is occurring and the white and blue areas are where the ground surface is relatively stable. So we're down here right now in this area, and this is over the last 10 years or so that you're seeing the data for. And so we are successfully managing the subsidence down in this area here compared to history where you see those

red lines, those were where the ground fissures opened up and we had about two and a half feet of subsidence occur over in this area. And so right now our management plan seems to be really working that our monitoring data is showing us that there's other parts of the basin where we have subsidence concerns. And so the focus of our committee now is more on doing investigations up in these areas and trying to develop similar management criteria to try to make that stop. We're concerned because you see that differential subsidence occurring right along the boundary of our basin. So yeah, that's an area of concern that's up in Chris's neighborhood. And so the city of Pomona has been very cooperative with us and allowing us to install monitoring facilities and they're a big participant in our committee. So the way to stop it is to recharge it primarily and bring water levels up. Yep.

Peter Kavounas (04:10:22):

And stop. Yeah, stop pumping. Stop pumping at some places to bring water levels up. So let's see. I'm a little disoriented. Where is the exometer?

background audio 9 (04:10:31):

Yeah, we're not, we're a little walk away I guess.

Peter Kavounas (04:10:35):

Oh, straight there. Okay.

background audio 9 (04:10:38):

I think it's,

background audio 7 (04:10:51):

You

background audio 9 (04:10:51):

Dunno. We're going to have, oh, we're going to have lunch, right? This is set up already after you sir.

Peter Kavounas (04:11:06):

There we go. Yeah,

background audio 7 (04:11:21):

I've covered quite a bit of ground so

Peter Kavounas (04:11:23):

Far. We have, yeah, the risk with a day like this is to give you too much information and saturate you, but please know that if you want to repeat or do another field trip of any kind, all you have to do is ask The parties, as I mentioned, are ecstatic that you're willing to do this. And we're more than happy to bring you back to any one specific area, focus on any one particular thing. But today you will get a comprehensive overview so we have some lunch. This is part of our staff who are trailing us today and they're caring for us. So lunch is at the table.

background audio 12 (04:12:11):

The question is do we have our name on them or do we get

background audio 7 (04:12:13):

The fish?

Peter Kavounas (04:12:14):

Let's see, we have a deli Turkey, two of those. Is it anywhere you'd like and what would you like to drink?

background audio 12 (04:12:35):

Water.

background audio 6 (04:12:48):

Trying to save? Yeah. No,

background audio 12 (04:12:54):

There was

Peter Kavounas (04:12:54):

A full on val going on there. Yeah. Okay. They're mostly gone now, but So we can drive over there after and do the in and out. Okay, we'll pop it open for you. Okay. Real good. Would you well sandwich for you.

background audio 6 (04:13:19):

Yeah,

Peter Kavounas (04:13:21):

We also have a salad in case somebody wanted a salad instead.

background audio 6 (04:13:29):

The storm is coming,

Peter Kavounas (04:13:30):

Huh? Yeah,

background audio 6 (04:13:32):

Back when schedule this. I thought it was going to be

Peter Kavounas (04:13:36):

A million degrees.

background audio 6 (04:13:37):

Yeah,

background audio 12 (04:13:39):
But we're told it's supposed to warm up again next week. I don't understand

background audio 6 (04:13:43):
It's

background audio 12 (04:13:45):
That's what they say

Peter Kavounas (04:13:57):
This for you.

background audio 6 (04:14:05):
What's your normal

Peter Kavounas (04:14:05):
Day like?

background audio 6 (04:14:07):
Normal day, our calendar. Thank you. Three times caseload.

Peter Kavounas (04:14:38):
You're going to eat what's in here? Yeah. And take it out. Give me the box. I get

background audio 6 (04:14:42):
About half an hour to 45 minutes. Do that one calendar at 10 o'clock trial. So generally we're in trial, we'll have a very trial that runs from Monday to Thursday and so pretty much the draft of the day or even at trial, I usually put that at three 30. And at three 30 I get off the bench and then I got to look at my calendar tomorrow, start prepping on the motion and stuff. So when you have a case like this where normal motion might be 15 pages long and really not very many attaches. So when you're a case like this where be 5,000 pages it well it's like when you get a rain and you're trying to couch all that runoff volume, it's about management. How are you going to case?

(04:15:50):
That's why you don't have people jumping in plan to do it with this, which is a very important case. So what I started doing was when I know that a water cases out that whole so that I'm not working on other cases, I'm still doing the trial but I'm not working on, I'm just dedicat. And then you do that until you calendar prep. But it's a pretty long workday not doing physical labor, but it's all mental power. The brain seems most of the nutrients that you take in it just sucks up all that energy, water infrastructure. I noticed that downtime 65. I'm definitely more tired. You have help? Well I've got staff that helps organized things. We have really good research. But beyond that but other than that, that's really what we really need. A so that it's very taxable crap

background audio 9 (04:18:55):

What Kaiser Permanente is saying that their employees all want to strike and I guess because they don't have enough healthcare workers feel they're overtaxed per day. They're considering going on

background audio 6 (04:19:13):

Strike maybe as early as next

background audio 9 (04:19:14):

Week. Wow. Another strike

background audio 6 (04:19:19):

Pfizer doctor discussions about how Kaiser never really anticipated Obamacare taking over all those Obamacare. If you're a Kaiser patient, wait, but they facilities. But that's one number.

background audio 9 (04:20:40):

Well I'm with Kaiser, it takes forever to get

background audio 6 (04:20:53):

Kaiser great.

background audio 9 (04:20:55):

Yeah,

background audio 6 (04:20:57):

When you're sick you really need it. They're not great. So relatively cheap. I always thought it would be fun to be a geologist, just go hiking the mountains. Did you ever do that?

background audio 9 (04:21:53):

My friends that go with me, they get a little irritated. Sit and listen to me talk about geology. Peter and I do a couple hikes together,

background audio 6 (04:22:09):

Know what those rocks were and how old they might be.

background audio 9 (04:22:15):

Find it very

background audio 7 (04:22:17):

Makes

background audio 9 (04:22:21):

Think about that stuff.

Peter Kavounas (04:22:29):

You've certainly given me a better appreciation for every hike we've been on about the place that how it was formed and

background audio 9 (04:22:43):

When we were drilling this borehole over here for the exometer, it was really fun that way. Looking at the sediments coming up out of the hole and thinking back in geologic time when those sediments were laid down and what the environment was possibly like. It was a fun thought to have.

Peter Kavounas (04:23:11):

I have a hard time thinking in terms of that much time gone by.

background audio 9 (04:23:16):

It's impossible.

background audio 6 (04:23:24):

I've been on your racetrack before. Not 50 miles an hour. We had it was meeting to a lawyer's bar meeting and we met at that track. Part of that meeting they arranged for everybody to take a ride around the track.

background audio 9 (04:23:51):

I may have driven you unknowingly.

background audio 6 (04:23:55):

I can believe how scary it was to go 150 miles in the car.

background audio 9 (04:24:00):

Put you right in the seat right next to the wall.

Peter Kavounas (04:24:02):

Yeah, you did that to me. But that's you. Yeah. Yeah. I was like oh my god

background audio 6 (04:24:07):

I didn't know you raised.

background audio 17 (04:24:10):

I play with all the toys over

background audio 6 (04:24:12):

There.

background audio 17 (04:24:15):

It's always somebody else's toy though, right? Because gas and brakes are very expensive to the race car. Right. So use somebody else's

background audio 6 (04:24:22):

Fired. It's better than having a hot rock friend

background audio 17 (04:24:32):

Guy. Just got my new pace cards for next year T r D cameras, three of 'em right off the

background audio 6 (04:24:38):

Right off the truck the day

background audio 17 (04:24:40):

They sound mean.

background audio 6 (04:24:42):

So what's the future of that track? It could be around.

background audio 17 (04:24:45):

Yeah. So right now actually pretty good. So we're actually practice right now the size of the track from a two mile racetrack to a half mile racetrack that seems race fans and those folks in the industry, big super speedway tracks don't quite make the greatest racing entertainment anymore. They tend to sometimes become a fuel mileage race and nobody wants to see somebody when the race by five seconds. It's not super exciting. So we're in the process shrinking it to a half mile. So you'll get a lot of rubbing is racing kind of stuff going on. Hot tempers usually sell tickets

background audio 6 (04:25:28):

So

background audio 17 (04:25:29):

That TV likes that. It can give you a shorter TV window there. The baseball is put a pitch clock in and get a three hour race window in and I get out of his car and threaten to beat the other guy up. Worked. We're in the process of doing that. So had our last two mile over race in February of this year. Happened to be that weekend that it snowed. Probably had snowed your house. We had snowed the racetracks. That was interesting. Race cars and snow don't mix a while,

background audio 6 (04:26:11):

Right? It's not loud.

background audio 17 (04:26:30):

So we've been quiet since February. Obviously being in the industry we do a lot of other racetracks too. So I spent time in Phoenix in fact going there, the not to distant future, that's where the NASCAR hoster championship race, I put that race on and I just got back from Chicago. We doing a track just out the south of downtown Chicago and Joliet. We actually hosted a super motocross event there. The entire front stretch. We build dirt jump motorcycles around and tear it all back out and wow, clean off the pavement, get the cars go around again. It's been an exciting end of the year for us.

(04:27:21):

Been quiet since February. Yeah, race weekend we didn't do anything afterwards because they started working on, I would call the salvage process stuff on a half mile that I do is a two mile. So a lot of our crash walk, cause we have that special energy driven patch wall it it migrated to other places that didn't have it. So it didn't go to waste. Made other places safer, but that's a process to mount that stuff. They're very, very obviously engineered, very specific for some pieces can be anywhere. Some have a very finite radius that we work with so we were able to a lot of that stuff. It's also very expensive so it worked out well. But to give it good typical, skip it home and just the construction process is just slowly, everybody here knows just when you think something's going to happen and you do some more study or the loan didn't fund today, tomorrow or whatever it may. Yeah, yeah. Got kicked back or plant chef again, whatever it may be. But it's getting a lot busier right now. There's activity on site. So

background audio 6 (04:28:47):

Did you say you were raised cows in this area

background audio 12 (04:28:51):

Still? Do

background audio 6 (04:28:54):

You know the Badar family or the

background audio 12 (04:28:56):

Very, very, very well three generations.

background audio 6 (04:29:01):

Mike Padar

background audio 12 (04:29:02):

Very well.

background audio 6 (04:29:04):

Mike's a good friend of mine, Ricardo friend of mine, a really good IE. Attorneys great firm

background audio 12 (04:29:15):

There with the top of the league in here with the and Bedard young. John was in John Bedard. My son was in my leadership class, which I wasn't qualified to take. So then you get a brilliant, always asking questions, very, very bright. But he is our new environmental junior. He sold us 20 million contractor to Chevron, 20 million contractor. Shell were involved in some other major project and he's just amazing. Never stopped.

background audio 6 (04:30:01):

Where's she farm?

background audio 12 (04:30:04):

I have Taiwanese investors that bought a bunch of lands were made in this basin less than a mile from here. So we own different pieces and not ready to develop. So in my lifetime they may have to do it because they're thinking right now they move back to Taiwan. They're trying to protect their assets there before anything would happen. So they're not selling here, which makes it difficult for me because they'll at least have a place to come home to and have property here.

background audio 6 (04:30:57):

Things go really bad over there. Thank you.

background audio 12 (04:31:03):

They've become a little bit more concerned in the last two months than they've been in the last two years. I've made arrangements with the Department of Defense. The families that I'm involved in would be moved out immediately by helicopter or other mean to get them to say ground.

background audio 6 (04:31:28):

Interesting. It's kind a scary situation happening. China. Come on. And what we would us would be if China was to invade Taiwan, we wanted to be willing to go World War II or seems to me though use solution was just to be Taiwan, want some news, make it too expensive for China to do it. I don't know why that's ever heard anybody mention that Maybe that would make the Chinese slip out. I don't know. But if they could protect, it's kind like when Russia tried to put Dukes in UBA soil. Obviously we flipped out about that because we could get the power to do it. But obviously that did existential threat to us. Not that we would ever take Cuba. In fact that we did. But at the time it was unlikely. And it seems to me it'd be very unlikely for China to invade Taiwan if fact they knew they had nuclear. It's interesting question. They seemed so technologically advanced there that why wouldn't they do it themselves? Probably money. Probably they want us for that reason. We would think. Defer China. Unfortunately you don't want to take them off apparently. I don't know. What do you think

(04:33:27):

Water situation?

background audio 12 (04:33:29):

Your earlier comment about Bernards young John is the premier dairyman probably now in the us.

background audio 6 (04:33:39):

Really?

background audio 12 (04:33:42):

I know I wouldn't debate him. Me, I wouldn't. Very, very bright young man.

background audio 6 (04:33:50):

Where are all the cows going?

background audio 12 (04:33:53):

Well we moved a lot of them to New Mexico and some to Arizona and some to Texas. The dairies are now not moving because of the economy and 70% of dairy is trucking. So you know what's happening to

our cars. The fuel is just crazy. Absolutely killing them. And it's a third generation. So grandpa had so much money, dad had so much money they didn't guard the money and so now things are getting really, really tight. I'm telling them I don't do that anymore. But they keep calling meaning drive

background audio 6 (04:34:47):

Tracks,

background audio 12 (04:34:48):

Politics, politic.

background audio 15 (04:34:49):

Yeah.

background audio 6 (04:34:53):

Are you part of the BAS community? Are you part of the BAS community?

background audio 12 (04:34:57):

I'm Dutch but very much involved with the bass community. I had 'em all wouldn't really mean anything was I had the very large dairy first and second generation from Holland, Portugal, south of France, all those quite a experience.

background audio 6 (04:35:22):

So when did your folks come over here?

background audio 12 (04:35:24):

Dad came over in 1919 jump ship in Vancouver, Harvard.

background audio 6 (04:35:29):

He literally jumped ship.

background audio 12 (04:35:31):

Yeah because of World War I. The family was starving and hauling. It was at the end of World War I, but they had no food. And then my mother came two years later and then dad got turned in for jumping chip for a $25 reward. So he made a deal with the courts and a great judge and says I'm coming back in six months.

Peter Kavounas (04:36:00):

Andy.

background audio 12 (04:36:01):

Andy. So it's a great story for over up here. Just a great story.

background audio 6 (04:36:07):

And so how did he get into the dairy? Was he in

background audio 12 (04:36:12):

All in Holland? We all came from, which is where 90% of the cheese and butter known in Holland is produced. So we all came from the Budha, all from the farm. That's why my dad didn't pay me when I grew up because they didn't get paid. Fair. So that's fair. I bought my own dairy and sold for development in 67 and Bellflower. It was a great buy. Are you familiar

background audio 6 (04:36:50):

With Norwalk being a dairy town?

background audio 12 (04:36:53):

Pardon me? Are you

background audio 6 (04:36:54):

Familiar with Nor Rock being a dairy town?

Peter Kavounas (04:36:57):

Norwalk

background audio 12 (04:36:58):

Norwalk nor Norwalk was more Dutch Norwalk. I think the Valley View Farms was done also. I don't think they're in restroom. The Gonzalez were there. The building Joe Gonzalez.

Peter Kavounas (04:37:15):

It's straight there, right? Gon so I'm thinking

background audio 12 (04:37:19):

It's really interesting how this,

Peter Kavounas (04:37:20):

I'm going to ask him if he wants to walk

background audio 12 (04:37:22):

There and then they brought the church with him

Peter Kavounas (04:37:24):

Instead of driving there.

background audio 12 (04:37:26):

Okay, you go to hell if you even looked at a girl. Do you want to ask?

Peter Kavounas (04:37:29):

Yeah,

background audio 12 (04:37:32):

It was an interesting,

Peter Kavounas (04:37:34):

Okay, so question for you. We've been sitting a lot all day in the van and driving around. We are going to see that monitoring facility that Andy described, the exometer. It is in those little buildings right there. Are you comfortable walking there? Absolutely. We could just as easily hop in the van. I made

background audio 6 (04:37:57):

A run

Peter Kavounas (04:37:58):

Over there. Okay. Alright. So you can leave your things here Brian. You can leave the box. So we're going to walk over there.

background audio 12 (04:38:06):

Alonzo's going to drive

Peter Kavounas (04:38:06):

While you do that. Who will open?

background audio 18 (04:38:09):

Justin is opening.

Peter Kavounas (04:38:10):

Okay. When

background audio 18 (04:38:11):

You get out of the extensometer, just go to that parking lot

Peter Kavounas (04:38:14):

And the van is, the van will be there. And you guys got this? Yes. Thank you Edgar. Thank

background audio 12 (04:38:19):

You very much. No worries.

Peter Kavounas (04:38:22):

So we take a nice little stroll. Andy will meet us there.

background audio 6 (04:38:28):

Well Mike Ard was the one that told me that my name Ochoa's actually a very common basket means whoa.

background audio 12 (04:38:38):

Yes. In

background audio 6 (04:38:39):

A bath language. So I have him to thank for that knowledge. But from that knowledge they told me that that's where my ancestors were promised for the past reason.

background audio 12 (04:38:51):

And they were very, very helpful during World War ii, if you were to talk to the old French Bachelor, great mountain fighter.

background audio 6 (04:39:05):

Yes,

background audio 12 (04:39:12):

I have the pleasure. 10 years ago hiring the enemy. Tracy also ask,

background audio 6 (04:39:32):

It's definitely a wealth of information.

Peter Kavounas (04:39:38):

She is married to a Greek named Peter. I happen to be a Greek named Peter. So she and I have a lot of stories to exchange

background audio 12 (04:39:53):

Stories like Peter said earlier that you go on all day,

Peter Kavounas (04:39:57):

All day. Yeah.

background audio 6 (04:40:10):

But I got to tell you, this was kind of a nice break from having to sit inside the courthouse all day, right? I just have to be going through some old filing on this case. And that's when I came across the fact that Judge Gunn, who I used to appear in front of,

Peter Kavounas (04:40:29):

Oh,

background audio 6 (04:40:31):

Had been on a tour of the facility. I thought that would be really interesting. I think they really helpful.

Peter Kavounas (04:40:38):

Yeah,

background audio 6 (04:40:39):

When I brought it up to you guys and I'm really happy to be here. You guys have organized such a wonderful tour.

background audio 15 (04:40:51):

Thank

Peter Kavounas (04:40:51):

You. We asked. So apparently Judge Gunn went on a tour with Mark Wildermuth and we asked Mark, Hey Mark, what was that like? Just to get some reference for today? And he said, the judge and I just hopped in a car and drove around all day. Of course today the environment is Chino Basin judgment and the water master context is a great example of increasing complexity.

(04:41:29):

Every court order that comes out, every management scheme, every new challenge that gets resolved adds to our way of managing. And along with that comes friction population increase demand for water. And so in today's environment we couldn't do that. There just isn't enough trust in people to say just hop in the car and go with the judge. But we still have, I mean I think with Scott Slater's efforts and all the attorneys pitching in, we were able to get agreement that this is a wonderful thing to do and be able to pull it off. So here we are. This is the Ayala Park Extensometer and Andy will join us. He's over at the restroom down there. He's going to join us. I'll tell you, the vault in there has some monitoring wells, smaller ones, and I'm going to let him explain this. Have you been here, Bob?

background audio 19 (04:42:37):

No, I

Peter Kavounas (04:42:38):

Have. You have. So please come on in. Don't touch anything at the moment. Well, things may seem heavy. They're very sensitive. I'm going to let Andy explain it. I will give you an orientation that there is a shallow well and a deep one and they each touch and different parts of bedrock. And Andy's going to explain to you how all that relates to the steel structure overhead, the datum, why we need the counterweights and all that. The displays on the wall are displays that are always here. So I think it's okay to talk about them. This shows you the monitoring network. You can do a land survey using surveying tools and measure the elevation. These are all the monitoring points. These are all monitoring points. And they tie into the a yellow park fixed extensometer. And these are contours. And so these are benchmark surveys and these are contours of probably of subsidence. So the most we had here was two feet. Two feet is a lot, probably like that. These are the fissures Andy was talking about. This is at the prison facility. That's a significant impact on land. There he is.

background audio 19 (04:44:15):

Hello people.

Peter Kavounas (04:44:16):

Hello Andy. Welcome.

background audio 19 (04:44:18):

I spent a lot of time in this building. I like what you've done to it. I'd like to hear about it. So

Peter Kavounas (04:44:27):

Please,

background audio 19 (04:44:27):

Yeah, walk us through. Okay.

background audio 5 (04:44:29):

So first of all, I just want to ask everybody not to touch anything in here because this equipment is very sensitive and so especially this over here and this over here. These are our two borehole X and is the shallow one as it's named. And this is the deep one. This goes down about 550 feet and this goes down about 1500 feet. So pretty deep. This one goes all the way through the whole thickness of the aquifer. Whoa. So let me point a couple things out to you here. When we drilled this core hole in particular, what we did was we went through all these different sediments here. And so if you get in here and look really closely, it has descriptions of the sediments where it's sand and gravel or this is a symbol for clays. So this is what the aquifer system looks like. It's clays and sands and gravels, and it's all inner beded where maybe floods brought in the sands and gravels. And then at other times it was more of a lake and just clays deposited out. So it's this inner beded sand and gravel. This is what our aquifer system looks like. Wow. And this is how deep it goes.

(04:46:04):

These are geophysical devices that we lowered down into the borehole and then brought 'em back up and they record geophysical signals. A kick this way indicates a good sand and gravel a kick this way represents finer grain sediments like clays here. So it's just a different way. These descriptions come from the actual sediments that come up out of the borehole as we're drilling through the earth. And these here are another way of indicating what the texture of the sediments are. It's a

Peter Kavounas (04:46:41):

Resistivity measurement, right Andy? What's that? It's a resistivity measurement.

background audio 5 (04:46:45):

Yeah. This is an electrical resistivity measurement. And so you get more resistance with clean water in sands and gravels as you do with clays, which have just, they conduct electricity a lot better.

background audio 20 (04:47:02):

So would that mean that this area would not house water?

background audio 5 (04:47:08):

No. Would

background audio 20 (04:47:11):

This area would not And this area would house water. So you could look at this saying that there's horse space available for water here. There's little pore space available for water

background audio 5 (04:47:20):

Here. Okay. It's a little different. I'm going to give you a little different explanation of it. Both have a lot of water in 'em. Clays have a lot of water in them. Sands and gravels have a lot of water in. This is very permeable. Water can flow readily through these layers towards pumpkin wells. Clay's very impermeable. They drain really slowly. Water capillary moves through very slowly, but this is where the compaction of the aquifer occurs. As these layers get, as a well turns on and starts pumping water from this layer, the poor pressure will decline and it will set up a pressure differential between the clay, which has higher pressure and this has lower pressure. So then the clays begin to drain into the sands that have lower pressure because they're being pumped. And as they drain, they compress and as they compress, the land surface comes down. That's how the subsidence process works. And it can work in a very slow delayed fashion because of the low permeability of these clays. Now the way we measure this is we drill in this borehole, we put a casing in a metal casing in the borehole, and then this black line represents a steel pipe that goes all the way down. And at the very bottom of the hole, we have a cement plug down there. And this steel pipe rests on that cement plug and it comes all the way to the ground surface.

(04:49:01):

This steel pipe is that steel pipe right here. So that's 500 feet long. That's 500 feet long. It goes down and it's resting on a concrete pad down at 500 feet. Oh, okay. So then it's coming up here and we've got some connections here to this lever arm and some counterweights. And what we're basically doing there is this steel pipe is very heavy and we don't want it to be bending on its own weight and resting up against the side of the casing. So we just take off through this arrangement. We take off about 80% of the weight of the pipe, but we do not lift it up off the bottom of the concrete path. So this thing here is our exometer. Now the other part of the facility is this beam, which comes over here and rests on this triangle. And this triangle has these three piers that go down about 50 feet and are just anchored to the ground surface here. And so these piers, this bridge, I mean this triangle and then this bridge represent the ground surface. So if we have any compaction that occurs in our aquifer system under underlying us that if it occurs between 550 feet and the ground surface, then the ground surface will come down. So this bridge will come down, but this pipe will stay stationary.

(04:50:47):

And so what we do is we measure the difference between the displacement that occurs between this pipe and this bridge right here. This is attached to that side of the device and this is attached to the steel pipe. And so this measures that displacement. It's very sensitive. A thousandth of a foot is its resolution. So we can measure this compaction of the aquifer system. We measure the upper 550 feet here of the aquifer system. We measure 1500 feet over there. So we get more displacement over there. We subtract these two records from each other to understand what's happening between 550 feet and 1500 feet. So that way we have some resolution of what sort of compaction is going on in the shallow aquifer system and what's going on in the deep aquifer system. And that's how we figured out that the deep aquifer system was the culprit.

(04:51:54):

And so who built this designed it? So the U ss g s geologist that I was speaking about earlier, he came in and advised us. My boss, mark Wildermuth, said Go out and find somebody. And I started calling around

the U S G S and they said, well, this guy's retired, maybe he would help you out. And sure enough, he just came in, kind of took me and the rest of the committee under his wing and led us along. This is how you're going to figure it out. And so he helped design the whole thing. We had subcontractors come in and drill the bore holes. We had a local iron worker do all the fabrication to our specifications and we set the whole thing up and got it working. And it's just been working really well ever since. It's been about 20 years now.

Peter Kavounas (04:52:50):

So Andy, tell us a little bit about elastic versus inelastic. Subsidence. Just a few minutes and

background audio 5 (04:52:57):

Sure. This is where it gets a little bit more complicated because the clays have the ability to accept some water when water pressures go up. And they will drain some water when water pressures go down. But they can do it in an elastic fashion. So seasonal pumping might cause water levels to go up and down in the sands. And the clays will just, it's almost like they breathe water coming in and coming out of them right on the edges of the clays. And that we call elastic deformation. And we're not too concerned about that. We see maybe like an inch or so of elastic flexing of the ground surface

Peter Kavounas (04:53:42):

Up in the fall kind of thing.

background audio 5 (04:53:45):

A seasonal pattern that is associated with the seasonal pumping and the seasonal ups and downs of the groundwater levels. However, if you lower groundwater levels too much, the clays will drain and it'll be a permanent drainage and compaction of the clay particles. So there's a water level, the safe water level that I was talking about earlier that we consider to be, we go past that depth to water. We draw water levels down below there, we will initiate this inelastic permanent compaction to occur. And so we've figured that out with the data that we've collected at this facility. And it's something that we continue to monitor. And if we determine from our monitoring data, well we want to take that level up or down based on the monitoring data, we may do that. But we have not made that adjustment in the 20 years since we've created the criteria.

Peter Kavounas (04:54:54):

And when you say initiate, that is not like the clays give up the water and shrink one time and that's it. It's a slow gradual compression that continues over time.

background audio 5 (04:55:04):

Yes, because the clays are very thick and if you can imagine the drainage just takes a long time. It'll drain quickly on its edges. But in order to get into the center of a clay layer and have that water drain out completely, it could take decades. So it's a very complicated process. There's this time delay associated with it. So it's a difficult phenomenon to manage, but we're trying our best to understand it with data coming from facilities like this and develop conservative management plans to try to make it stop.

Peter Kavounas (04:55:49):

Andy, the question I get asked a lot is, can that be reversed? If you've had inelastic deformation, Ian, some sites, can you actually reverse that and put things? You cannot. You

background audio 5 (04:56:01):

Cannot. That's why it's inelastic permanent. You cannot.

Peter Kavounas (04:56:04):

So if you pumped it full of water, you can't really squeeze, inflate the clays back to where they can

background audio 5 (04:56:09):

Inflate the clays back once they've permanently compacted. That's a permanent drainage of the water out of the clays. It's almost like you're mining the groundwater out of the clays.

background audio 21 (04:56:21):

But if the clay is then the stationary or collapsed that the ground is stable and the lands subside and stops,

background audio 5 (04:56:30):

Isn't that a good thing? Yes, that's a good thing. We want to stop that clay from compacting. We can continue to lower groundwater levels and continue to drain more water out of the clays. That's not what we want to do. So we want to find those safe operating ranges for water levels so that we're stopping that process from occurring.

background audio 12 (04:56:52):

Is the question appropriate as or no?

background audio 21 (04:56:57):

Well, I think it was, if it's collapsed, then you no longer have subsidence. But that's not workable either because then you can't recharge that layer anymore.

background audio 5 (04:57:08):

You can't recharge it later. You can't

background audio 21 (04:57:10):

Use it.

background audio 5 (04:57:10):

Right.

background audio 21 (04:57:11):

For what we want to use it for.

Peter Kavounas (04:57:13):

And if you get the complete collapse, you have a lot of subsidence, so you have to deal with the consequences of that. Judge, is it okay if Mr. Finra asks a question? Yeah,

background audio 12 (04:57:25):

Just a quickie because in my younger days, Andy, we talked in Cerritos, we talked in paramount about the clay layer and that was not a bridge to contamination. Generally. The contamination didn't get to go into the lower ground. Now I hear this word collapse. So if clay collapses can contaminates go,

background audio 5 (04:57:53):

It's still clay. It's still a clay and it still has water in it. It doesn't completely drain out of all of its water.

background audio 12 (04:58:04):

Is it still a protection? Yes. That's what I wanted to hear. It just

background audio 5 (04:58:08):

Has less water

background audio 12 (04:58:09):

In it. Yeah, that's what I wanted to hear.

background audio 5 (04:58:11):

Yeah,

background audio 12 (04:58:11):

Needed to hear.

background audio 5 (04:58:13):

The water that exists in the clays really isn't a part of our aquifer system that we can use. The water that exists in the sands and gravels are what gets recharged and flows to wells. You kind of want your clays to just be there and just be deforming elastically. You don't want to have water levels lower so far in your sands and gravels that you begin to drain that water out of the clays. You want that water to just stay in the clays and not permanently exit the clays and cause the compaction and the associated land subsidence. So it's really, again, it's coming down to this management of groundwater levels in the basin to try to mitigate and the occurrence of subsidence and not let it happen in the future.

Peter Kavounas (04:59:08):

So the studies in this area involved, as Andy said, pumping from the shallow wells and letting it recover, pumping from the deep wells and letting it recover and watching what's called the hysteresis diagram of Does the ground come back? Yes. Okay. Pump the deep back. Does the ground come back and eventually arrive at this guidance level? And again, water master's role in this specific case is not to regulate their production. It's simply to conclude the studies and give them a guidance that they have to observe. We do not tell the parties, we don't think we have the authority to tell the parties, don't pump beyond that because you'll cause subsidence.

background audio 15 (04:59:55):

Thank you for letting me ask that

background audio 5 (04:59:56):

Question. I needed to hear that answer.

Peter Kavounas (05:00:00):

So there's another extensometer, we didn't really talk about it much, but we did mention there's concern for subsidence in the northwest area up near Pomona area. So we have another extensometer installed. It's not like this is an expensive facility to build and we're tracking that as well. And eventually we'll be developing a guidance level for water levels there as well.

background audio 5 (05:00:32):

Adults

background audio 21 (05:00:32):

Just wait from somebody's weight set?

background audio 5 (05:00:35):

Yeah, they are

Peter Kavounas (05:00:37):

Probably Andy's weight set.

background audio 5 (05:00:39):

We have extras back there, but we don't have a bench. This is climate controlled in here too. I mean we really went all nine yards to, we were afraid at that point in time that this building would get really hot and really cold and that the metal itself would expand and contract and we didn't want that to contaminate our extensometer readings. So this facility has really state of the art. We built it up high so we can walk in and a lot of these other facilities that you see in the Central Valley, you've got to get up underneath.

Peter Kavounas (05:01:17):

I never thought of that. Small footprints.

background audio 5 (05:01:19):

We made it big and so we could work around in here and yeah, we're collecting information here too. These record, it's every 15 minutes, they take a measurement and they come over here and we've got data loggers in here that we come in monthly and download all the data. We have wells monitoring wells. And I'll show you what a monitoring well looks like outside where we are measuring water levels at different depths within the aquifer. So the water level measurements from out there paired with the exometer measurements up here, which are measuring the aquifer system. Compaction is really how we understood what water level changes cause what type of deformation within the aquifer system. So it's the pairing of the water levels and the excon soter data that really provided the foundation for our

understanding. We were also monitoring water levels and groundwater production at all the surrounding wells too. So it was a really comprehensive investigation.

Peter Kavounas (05:02:33):

And you have your benchmark surveys that

background audio 5 (05:02:35):

Yeah. And

background audio 9 (05:02:36):

So we've got consultants that are also measuring the ground surface, not just in here but out amongst the city of Chino here where they come to benchmarks like this and they set up their leveling surveys and they start here and they go around for miles, square miles around here measuring the ground surface changes periodically. They do that about once per year and we've got the radar satellites

Peter Kavounas (05:03:07):

That are So it's multiple sets of data tied together? Yeah.

background audio 9 (05:03:11):

Yeah.

Peter Kavounas (05:03:13):

Monitoring.

background audio 9 (05:03:13):

These are what monitoring wells look like. It's a little dirty. It is about 20 years old now, but these are five different monitoring wells that go down into one bore hole and they all go down to different depths within the aquifer and they're measuring groundwater level changes at different depths within the aquifer system. This is a pretty big monitoring facility where you got five wells. Sometimes you'll just have two wells, sometimes you'll just have one. Well, a monitoring facilities come in all different shapes and sizes. But this one here, we put five pipes into one borehole down to different depths.

Peter Kavounas (05:03:56):

Isn't there a name for it? Is it?

background audio 9 (05:03:58):

This is called a nested

Peter Kavounas (05:03:59):

Pedometer. Nested pedometer. That's it.

background audio 9 (05:04:02):

Nested. A nested pedometer where we got a nest in here of

Peter Kavounas (05:04:08):

Pipes. One is this long, the other one's a little longer. The other one's a little longer. So they each measure different parts.

background audio 9 (05:04:14):

Yep. Different depths within the aquifer system. Yeah.

Peter Kavounas (05:04:18):

So good. Have we painted the picture of what the land subsidence monitoring is like?

background audio 9 (05:04:30):

Yeah. Pretty darn complicated.

Peter Kavounas (05:04:31):

It is, yes.

background audio 9 (05:04:34):

I'm amazed at that thing now that somebody kind of designed that from the ground up.

Peter Kavounas (05:04:39):

I'm amazed at the sensitivity of the thing. Yeah,

background audio 9 (05:04:42):

Amazed. That is crazy. Very high resolution. Yeah.

Peter Kavounas (05:04:46):

So let's keep moving. Yep. We're going to, at this point, the plan is to be in the van until we get back to the office. We have a couple of points of interest if anybody needs a restroom One more time. Restrooms are right there. Right there, there. So please go ahead and then we'll meet back here. Okay. Okay.

background audio 9 (05:05:08):

There's another one right there too. Another bathroom. Very good. Is there another well over there that they've got open? They're going to bring the car here or

Peter Kavounas (05:05:18):

It's right here, Bob. Oh, thank you. Yep.

background audio 9 (05:05:20):

There is another well right there. And this is an example of our cable exometer. So what we wanted to do is try to simulate this facility, but with

background audio 15 (05:05:35):

A smaller equipment, this is what our look like.

Peter Kavounas (05:05:44):

We might skip c D A too.

background audio 15 (05:05:46):

Okay. Do you want it to call Matt?

Peter Kavounas (05:05:50):

Not yet. I'll let you know. Okay. I think after we do RP five and CDA one and we drive along a few of the monitor a few of the, I'm thinking we might skip C D A too. This is a lot of information. Can

background audio 15 (05:06:04):

We skip C D A too?

Peter Kavounas (05:06:06):

Can we,

background audio 15 (05:06:07):

Because it's in the stipulation, right?

Peter Kavounas (05:06:10):

We could do less, not more. I think it's okay.

background audio 15 (05:06:14):

Okay.

Peter Kavounas (05:06:15):

Once you're ping Scott and ask him, I would you mind

background audio 15 (05:06:19):

Let me know. And then

Peter Kavounas (05:06:21):

Yeah, I think as long as we see the C D A wells in their alignment, we see Prato basin in, well three. Bob, I'm thinking we might be skipping a tour of the CDA two treatment plant because we're going to go through CDA one, we're going to go through RP five. And so those will be our third and fourth treatment plans for the day. And the fifth one might be too much.

background audio 12 (05:06:45):

Can you line me up on a time? Otherwise I may have to do a

Peter Kavounas (05:06:49):

Uber. An Uber or we can help you too with a ride.

background audio 12 (05:06:52):
I mean, will we be three o'clock

Peter Kavounas (05:06:54):
Or I think we're three is now the earliest We'll be back, huh? Yeah, maybe three 30 is when we're going to

background audio 12 (05:07:01):
Be back. No, we need a ride.

Peter Kavounas (05:07:02):
Okay.

background audio 15 (05:07:03):
What time do you need to go back?

background audio 12 (05:07:06):
I've got to be back in U C I by about three 30.

background audio 15 (05:07:13):
Oh

background audio 12 (05:07:15):
No, I'm saying I'll stick around for another hour.

background audio 15 (05:07:18):
See? No, it's 2:00 PM.

Peter Kavounas (05:07:20):
It's two now. We

background audio 15 (05:07:20):
Probably should take you to the office.

Peter Kavounas (05:07:24):
Do we have the ability, we don't need you guys from this point on, right? No,

background audio 15 (05:07:28):
No.

background audio 12 (05:07:30):

I want to be fair to all your efforts. You could ask him if he has any questions about ag. The clay lever layer was really big because 30 years ago, clay le, it was determined it was our savior

Peter Kavounas (05:07:44):
Keeping things,

background audio 12 (05:07:45):
Keeping the poisons from going below. So you're pumped past the clay layer,

Peter Kavounas (05:07:53):
Right? So our guys can take you back to the office.

background audio 15 (05:07:59):
We can do that.

background audio 12 (05:08:00):
I tip,

background audio 15 (05:08:03):
I mean how well do you,

Peter Kavounas (05:08:07):
Wait

background audio 12 (05:08:07):
A minute, I got a couple ones in my pocket,

background audio 15 (05:08:11):
Man. All the way back to the office.

Peter Kavounas (05:08:16):
So let's do that. You

background audio 12 (05:08:19):
May want to, what am I going to miss? I thought I'd wait for them to come

Peter Kavounas (05:08:21):
Back. Yeah, see if he has a question. I think let's do that. Ask him.

background audio 12 (05:08:25):
He knows the baart. So he's really involved in dairy.

Peter Kavounas (05:08:29):

Yeah, he knows

background audio 12 (05:08:31):

Mike. Mike can hear.

background audio 15 (05:08:33):

Are we done with the, yeah.

Peter Kavounas (05:08:37):

Thank you sir. So after the judge comes back, I think we're going to do a slight change in the plan if Scott says it's okay, I think we're going to skip the C D A two tour.

background audio 15 (05:08:50):

C D

Peter Kavounas (05:08:50):

A two. Yeah. I mean it is just a drive-through, but we're about to see CDA one. That's the third plant we're going to see RP five. That's the fourth plant of the day. So we're going to see the wells along the alignment of the wells. I'm going to tell 'em where the map on the map where it's at, and then we'll go to prodo monitoring three and we call that a day call and then head back from there. That

background audio 15 (05:09:13):

Sounds good.

Peter Kavounas (05:09:17):

We had a much longer but good discussion before we ever left the office and I wouldn't trade that for anything, but I do think at this point we're going to be way late.

background audio 17 (05:09:32):

You trade it for CDA too?

Peter Kavounas (05:09:33):

Yeah, I would trade it for CDA

background audio 15 (05:09:35):

Too. My think stopped

Peter Kavounas (05:09:36):

Blinking. Okay. Okay. Let's get Alonza too. Okay.

background audio 15 (05:09:44):

Is he He

Peter Kavounas (05:09:45):

Over here? Yeah, he's over there. You'd have to do it in the shade. Mine's still recording. I'm still

background audio 15 (05:09:50):

Here.

Peter Kavounas (05:09:54):

And he's said a couple of times we've covered a lot of ground, so I'm trying to be sensitive. I love the fact that he wanted to come out today. This is so good.

background audio 15 (05:10:14):

Yeah, he's been engaged and educated.

Peter Kavounas (05:10:22):

Is there anything you've seen today that you hadn't seen before?

background audio 17 (05:10:27):

I had never been to W F A. I went on a tour and we came here and we went to Monte Vista to a different A s R. Well that was sort of in a

Peter Kavounas (05:10:41):

Structure. Yeah. Yeah. So that was one of the water masters, but that was like 2013. I

background audio 17 (05:10:47):

Was going to say it was like 10 years ago

background audio 15 (05:10:53):

And

background audio 17 (05:10:54):

I haven't been through c, d a

Peter Kavounas (05:10:58):

One or two any.

background audio 17 (05:11:04):

I was just telling And my kid does football

background audio 15 (05:11:06):

Practice like literal in this field

background audio 17 (05:11:07):

Right here by the table. Table. And I always remember the exometer, but I never knew which little shack it was in.

Peter Kavounas (05:11:13):

When we were here last time, about three weeks ago, there was a big old school buses and teams of kids. So PB three will be the last spot. Okay. Scott?

background audio 15 (05:11:26):

I think Brad and Scott, but they

Peter Kavounas (05:11:28):

Haven't responded. Okay. I think at PB three we're going to turn around and head back. But I'm going to, so Bob Fetra needs to go back. So Edgar and Justin are going to take him back to the office. Okay.

background audio 5 (05:11:43):

Right now.

Peter Kavounas (05:11:44):

Right now he's going to peel off on his own.

background audio 5 (05:11:48):

Okay.

Peter Kavounas (05:11:50):

Okay.

background audio 5 (05:11:55):

What'd

background audio 6 (05:11:55):

You say? The sensitivity

background audio 5 (05:11:57):

Of the sensitivity,

background audio 6 (05:11:59):

The sensitivity measurement was in that, how sensitive was it?

background audio 5 (05:12:03):

It depends how 0 0 1

Peter Kavounas (05:12:09):

Inches or feet. A

background audio 5 (05:12:11):

Thousand, no, I'm sorry. Feet. A thousandth of a foot. So is the resolution that we can measure. Perfect. So it is our gold standard. We truly believe that it is accurately measuring the deformation. And so we base everything to the ground, traditional ground.

Peter Kavounas (05:12:37):

You want to say your goodbye

background audio 5 (05:12:39):

And then move out. Check

background audio 6 (05:12:42):

My kidney. What's that? It's the most elaborate

background audio 5 (05:12:44):

One. Yes. We'll be talking. Sure.

background audio 6 (05:12:48):

We'll see that survey. What satellite,

background audio 5 (05:12:56):

What they do is they,

Peter Kavounas (05:12:57):

Bob, you want to say goodbye to him?

background audio 5 (05:12:58):

So we measure, let's say we measure an inch of deformation from the last time that they did a survey. So then they'll come out to this benchmark and they'll go, it's an inch lower. So then they'll start from there and what they do is then they shoot out to the next benchmark, to the next benchmark to the next benchmark. And they just measure the elevation changes that have occurred. But they start here and they take the data that we're collecting here and say, this is what happened at this benchmark between the last time we were here and now we're out here starting the new survey. That's what they do. But you're right, they also set up a G P SS device out here, a high resolution G P S device. They run for about two hours and they take a G P S measurement too as a check.

background audio 6 (05:13:51):

And what's the sensitivity of that?

background audio 5 (05:13:55):

That's a lookup. I need find out. But that's why they've set up the two hours to reduce the air.

background audio 6 (05:14:02):

So as amazing as that setup is, why don't just do G P S? It seems like that's easier lift.

background audio 5 (05:14:08):

Yeah, so G P s is good. It tells you everything that's going on below here. We can get depth specific, like with the two x Extensometers shallow versus deep. And that's the type of understanding we really need is where is the compaction occurring depth specifically within

background audio 6 (05:14:28):

That, that's the multiple data points that you're trying to picture.

Peter Kavounas (05:14:34):

So tour logistics for a moment, judge, Mr. Finra is going to catch a ride and go back to the office. So he is parting ways with us and I would like to suggest that perhaps given our time, we're running a little bit later because there's been more conversation at every stop, which I think is good. But the last treatment plant would be our fifth treatment plan of the day. And I'm afraid that it would look just like the others and not really add value to you. So I'm going to suggest that maybe we eliminate that from the itinerary, if that's okay with you.

background audio 6 (05:15:10):

That's fine. I'm just happy I'm not the first one to drop out you. I'm grateful to be part of your tour. Well, I'm so happy you're here. Glad we got to talk. Look forward to future.

Peter Kavounas (05:15:21):

Yeah, just tell 'em they need

background audio 6 (05:15:22):

To check my kidneys. So my wife might shoot me.

Peter Kavounas (05:15:26):

He's not here. It's a field obviously. Important conditions dictate. See you.

background audio 6 (05:15:30):

Bye. Take care

Peter Kavounas (05:15:31):

Bob. Take care Bob. So I'm also double checking with Scott Slater. He's very sensitive. We want to keep you squeaky clean. We have a stipulation that said we're going to go to that plant. So I don't think it's a problem eliminating something from the trip. I think it's a problem if we added something to the itinerary.

background audio 6 (05:15:52):

I agree. I

Peter Kavounas (05:15:53):

Agree. So, okay, so let's go use, you'll see c D A one and you can use your powers of imagination. C D A two is newer, bigger, recently expanded as all plants are. And again, that too, if you want a focus tour, happy to arrange that. They actually love showing off all operators. Love showing off their facility.

background audio 7 (05:16:28):
Get Alonzo there. Start yours up. What on? What happened?

Peter Kavounas (05:16:34):
Oh, thanks for checking.

background audio 7 (05:16:36):
Good move for you. Thank you for your effort. This mic is not,

Peter Kavounas (05:17:05):
We good? Yep.

background audio 7 (05:17:07):
Alright.

Peter Kavounas (05:17:08):
Thank you Edgar.

background audio 7 (05:17:10):
Okay. Watch yourself recording.

Peter Kavounas (05:17:16):
Collect that from him.

background audio 7 (05:17:21):
First I thought well maybe they took them apart. They were having some death problems. I know. Yeah,

background audio 9 (05:17:26):
They don't have the best bathrooms here. And that was the nice one that you were going to state parks. Now the bathrooms are so much nicer than they once

background audio 10 (05:17:42):
Weres

background audio 9 (05:17:46):
All open air.

Peter Kavounas (05:17:50):

So if you're ready for a little more. Yep. What I'd like to do is have you look at tab number six in the book and tab number six is a map. This is from the project description in the piece two agreement. And it shows the wells that were to be drilled for the Chino basin desal. And the two green circles are the two desalt or plants. So you can see how that line of wells parallels the river.

(05:18:34):

It's intended to act as a curtain as a barrier between high t d s water from the north and the river from the south. So high t d s water no longer flows into the river. The wells capture it, they pump it, the water goes to C D A one and c D a two treatment plants. The salt is extracted. So now you actually have extraction of the salt, which is not good in the basin. You also have this high t d s water no longer going into the river, which was a problem for downstream users like Orange County. So

(05:19:16):

That is the heartbeat of the chino base in salt and nutrient management plan because that is where most of the salt is captured and removed. It's also the heart of what is called the maximum benefit agreement with the regional Water Quality Control Board. In exchange for the commitment to build these multimillion dollar facilities, the regional board then allowed parties to use recycled water upstream. Recycled water is high in T D s, but the regional board said you can have a little more capacity up there because you now capture it all and it won't hurt anybody else downstream. So construction of these facilities removes the t d s keeps it from going downstream and allows recycled water to be used direct use for park irrigation. For example, median irrigation and also recharge of the basin. Otherwise we would be exceeding the limits for salt in the basin and couldn't use the recycled water.

background audio 10 (05:20:22):

And so farers located

background audio 6 (05:20:24):

Both in this area, relatively small area compared to the rest of the basin

Peter Kavounas (05:20:29):

Because we're now downstream near the exit of the basin. So they're intended to just cut it off and exercise what is called hydraulic control to where none of the water from upstream can actually go downstream. It's controlled with the desalt. If you can imagine each well pumps and lowers groundwater immediately next to it. If you string a bunch of wells together, you create this trough of lower water level there, which captures the water. And actually instead of letting water go into the Santa Ana river reverses the flow and flow from the Santa Ana river now recharges Chino Basin. So it enhances the safe yield of Chino Basin for the parties a hundred and a couple hundred million dollars investment by the parties. And very successful for the two des Salters and the wells to be expanded. You can see the history of those and the peace agreement. There was a commitment to that and to expand the capacity, the piece two agreement, there is a commitment to expand the capacity to what it is today. The desal pump 40,000 acre feet a year. Andy, any thoughts on the salt nutrient management plan to add to the desal operation? Yeah,

background audio 9 (05:22:00):

Now we're in the very southern end of the basin and the water levels are much shallower here. Maybe 50 feet to groundwater right where we're at right now. And it gets to the ground surface, not too further down sound. The quality of the groundwater is non-potable high in T D Ss concentrations high in nitrate

concentrations. You can't pump it and drink it without treating it through reverse osmosis. So of central part of the O B M P was that we knew that the ag was moving out and we knew that new residential and commercial developments were moving in, but we knew that if ag moved out, so would their pumping, but the water is not of potable quality. So the municipal agencies wouldn't pump the water. And so groundwater levels would rise down in this area because of the lack of pumping. And we'd have more discharge of this shallow groundwater of very poor quality into the Santa Ana river, which flows down to Orange County and is recharged in Orange County as part of their recharge strategy. So Peter's right de salters were envisioned to come in here and replace the agricultural pumping that was moving out of the basin so that we could maintain lower groundwater levels in this portion of the basin, not lose our groundwater to the Santa Ana river, not contaminate the Santa Ana river with high t d s and high nitrate and use the groundwater, treat it and put it to potable beneficial use.

background audio 6 (05:23:51):

And where are the treatment plants that this water's going?

background audio 9 (05:23:54):

Where are the treatment plants? It's that green dot. In that green dot. And then they have all going the, yeah, these wells pump to those facilities and then the water's treated there and then distributed to the communities down here.

Peter Kavounas (05:24:11):

We're just about at C D A one, the green dot on the left. We are first going to stop at the wastewater treatment plant, recycled regional plant number five, which is to our right now we're going to do a drive-through through that plant. And then you're going to see c d A one. So we're practically on that green dot on that map right now. This is wastewater treatment. Oh,

background audio 9 (05:24:38):

This is huge.

Peter Kavounas (05:24:39):

It's huge. And it's being expanded right now. All the wastewater from all the houses. Well it's not all comes here. Not all of it comes here. Some other smaller ones, but this is the main piece. So what's different, as we talked earlier, what's different about wastewater treatment plants is they have much more of a solids issue than water. They have gas issues to handle and they have odor issues. So we are, the water flows through the plant as we came in from here all the way down that way.

background audio 6 (05:25:20):

So who would be in charge of this plant?

Peter Kavounas (05:25:22):

I u a.

background audio 6 (05:25:24):

But what person, what degree would you have?

Peter Kavounas (05:25:27):

Oh, you'd have to have a wastewater treatment plant operator. Five.

background audio 6 (05:25:34):

That's an engineer.

Peter Kavounas (05:25:35):

No, not necessarily. In our business judge there are operators, there are distribution system operators and treatment plant operators. And there is licensing and certification for those. It goes from D one for distribution one to D five and T one to T five. You'd have to be a licensed T five to operate this. And that requires knowledge and understanding of every mechanical and chemical component of this plant. There's incredibly detailed knowledge to run a plant like this. Licensed operators are worth their weight in gold. You actually cannot operate a water or wastewater utility without operators not allowed to by regulation. And so there's tremendous incentive to train your staff, help them take and pass their tests and give them relevant experience. So this is I u a Inland Empire Utilities Agency. It morphed and got into the wastewater treatment business. And so to the right you have the first solids screening. There is some course screening to take out all the trash before it goes through a water treatment plant. Part of their expansion is to add a fine screening material that is the construction that was immediately passed to our right. So you want the water that'll go through the same primary treatment process of flocculation mixing sedimentation. You want all the solids to be out as much as you can.

background audio 6 (05:27:17):

And what happens with these solids?

Peter Kavounas (05:27:19):

The solids go to the tail end of the plant. They can be disposed of. If they're landfill material, they go to a landfill. To the extent it's compostable material, it gets put into with a sludge that's at the end of the plant. So after the solids are removed, the flow proceeds to our left and we're going to follow primary treatment on the left, which is the same as the primary treatment that we've discussed. And in this particular case, sewage doesn't come at a prescribed. Oh, that's new,

background audio 6 (05:28:04):

Right?

Peter Kavounas (05:28:06):

They didn't know we were coming. Yeah, we may have to. So hold for one second. Over to the right is an emergency overflow. You may have heard that at the time of halftime, a Super Bowl, everybody goes to the bathroom. That increases the flow more than the plant can handle. So there you have the emergency overflow to the right and then you can handle, can slow it down and then eventually treat it through the plant, through the regular process. Alonso, you will have to go around I think so

background audio 6 (05:28:43):

We head back that way. Yes. Yeah,

Peter Kavounas (05:28:45):

But we're going to turn right at the end. Yeah. So primary process to the right, you have very similar considerations as in potable water, except you begin with much dirtier water.

background audio 6 (05:29:01):
And what does the do above? Yeah,

Peter Kavounas (05:29:05):
I'm sorry.

background audio 6 (05:29:06):
What's the do add-on going to do it? Do

Peter Kavounas (05:29:09):
The new add-ons that are being added are to handle more solids handling and more quid processing.

background audio 6 (05:29:26):
And these are filters.

Peter Kavounas (05:29:30):
This is odor control to the right because it's smelly. Wastewater treatment plants very different than a clean water treatment plant. This is all order controlled. So it's scrubbed and through scrubber filters and not released to the atmosphere. You have electrical buildings coming up to the right, you have behind them. What's

background audio 6 (05:30:01):
The reason for the wood chip file here? Is that I guess an odor control chain?

Peter Kavounas (05:30:07):
I don't know. That is, it may be a site of future expansion. No, no particular function that I'm aware of. So you have the process of treating wastewater is a sequential clarification process. So your primary clarifiers, secondary clarifiers behind these buildings to the right are the secondary clarifiers. Go ahead and go right. Yeah. Which are the basins now to our right. And let's see if we can pick up our route from before. It's usually not as much construction. Usually it's a treatment plant that's operating. So

background audio 10 (05:31:14):
Yeah,

Peter Kavounas (05:31:16):
Straight ahead. There should be a, oh, maybe it's behind the building.

background audio 10 (05:31:23):
Oh,

Peter Kavounas (05:31:23):

Right here is a massive solar panel farm, one megawatt generation capacity.

background audio 6 (05:31:30):

That's huge.

Peter Kavounas (05:31:32):

Massive. And to the left, these are secondary clarifiers. So you imagine the water is in these big circular tanks is slowly paddles going through it in circles slowly and allowing a chance for solids to settle out. The new building here on the left is going to be a membrane bioreactor, which will help destroy biological agents in the wastewater part of the expansion. What I love facilities like these is that you could drive past them a million times. You have no idea what's here and when you're in it, it's like this massive operation.

background audio 6 (05:32:29):

And what do they do to complete this?

Peter Kavounas (05:32:33):

I don't know. Oh, I would be guessing. It's a lot. It's a 330 million project. I couldn't tell you. So what you have to the right, you see those? Well, the handrails are, there's contact basins in there where the treated plant effluent is allowed time to contact with chlorine and kill off anything else that may still be living in it. And from there, water can go either into the distribution system, the recycled water distribution system to be recharged in the basin or to be applied for direct uses. Or it can go out to the right into a channel that eventually makes its way to is the Chino Creek and then down to the Santa Ana River. We would like to, of course, as an overall management of the area, we'd like to minimize how much water is put down the Santa Ana river and reuse as much of it as possible. Massive scale construction overflow pond to the right. If there's more sewers in the plant can ever handle, there's a place for it to go there. Yeah. Another reason for having spare land in a big plant like this,

background audio 6 (05:34:18):

Is that just a dirt

Peter Kavounas (05:34:18):

Pond or just the dirt pond? Warehouse to the right is being built and beyond the warehouse you have the handling of the gas. The building that's coming up is for the handling of the gas. And they reuse

background audio 6 (05:34:46):

It? Yes.

Peter Kavounas (05:34:46):

They burn it, burn it for any purpose. They do have a cogen plant that can actually burn it to generate electricity. So these big circular tanks to the right are all part of the new construction and part of the additional liquids handling. And it's all about handling, taking the sludge from the bottom of the plant where we were. They bring it up in front of us here. And the sludge goes through sequential drying stages to where eventually it becomes dewatered to about a 20% solids consistency, and then it can be hauled off. If it's non-hazardous, it can be haul off and go to a landfill.

background audio 6 (05:35:39):

So it's doing that in these tanks.

Peter Kavounas (05:35:41):

In these tanks, the building ahead of them, the tanks, and then there's a dewatering plant that was just behind where the gas boilers were. It's all one sequence that goes from in front of us all the way past behind us. And from what I know where this pit is right here to the right, there's going to be a separate food waste separator because that can be compost directly. Really? Yeah. That's pretty innovative. Nice. Yeah.

background audio 10 (05:36:25):

Now they're going to start requiring that

Peter Kavounas (05:36:28):

Sort of the food sorting. Yeah, yeah, yeah.

background audio 6 (05:36:34):

I think we've already got a notice about that.

Peter Kavounas (05:36:38):

Yeah, we already have to do that at my house.

background audio 10 (05:36:41):

Do you compost?

Peter Kavounas (05:36:42):

We don't compost, but we do separate. Okay. And we put the food waste with the green

background audio 10 (05:36:49):

With the yard clippings. Yeah.

Peter Kavounas (05:36:54):

So we are kind of at a low point right now, judge, where we've come from the mountains way up in front of us all the way down here. And so has the water, the water's been used and reused. It's come down here, it gets treated and as much of it as we can recycle, we do. And any part of it that we can't goes to the Santa Ana River. There is an adjudication on the Santa Ana River. There is an obligation that I u A has on behalf of the region to release a certain amount of water to the Santa Ana river. And that's the subject for a whole other time. But recycled water is used to meet that obligation.

background audio 6 (05:37:39):

Yeah. I was going to ask if release acre footage number

Peter Kavounas (05:37:46):

Yes.

background audio 6 (05:37:46):

Back the river.

Peter Kavounas (05:37:48):

So by way of history, I'm going to

background audio 6 (05:37:52):

Go, do you draw anything out of it

Peter Kavounas (05:37:56):

Out of the Santa Ana river? Yeah, we do. Part of the safe yield of the basin is water that infiltrates from the river because we've lowered the water levels in the basin. A Santa Ana river adjudication came as a result of three separate litigations that concluded in the sixties. And as a result of the third one, there was a collective obligation of this region to the Santa Ana River, which then drove the Adjudication Shina Basin in the seventies. So the Santa Ana River came first and Orange County in the beginning. Orange County sued everyone and eventually their lawsuit just sort of boiled down to we want to measure the flow at Prato and there has to be this much flow at Prado and all y'all upstream have to make sure that it happens like that. So that simplified light and led to an adjudication.

background audio 9 (05:39:12):

Historically, the downstream people in Orange County, were at war with the upstream people here, the Chino Basin and the rest of the upper watershed. Now that it's a more collaborative exercise, but they had to go through that painful adjudication process of suing each other and doing a lot of the scientific studies to figure out what was the right allocation. But now we cooperate very nicely in the Orange County Water District,

Peter Kavounas (05:39:46):

Including monitoring a Prado, which we'll talk about in just a little bit. So last treatment plan for the day, if we are going to skip CDA two, we are going to go into CDA A one.

(05:40:01):

This plant existed before the peace agreement operated by I U A as a desal. What you see straight ahead is one of the C D A wells and it pumps water. This is on the plant, so it pumps water directly at the plant site and is treated at the plant. We will see many more of those, but this one happens to be here. CDA one was an initial concept. Everybody liked it and so they latched onto it and in the peace agreement they expanded the C D A capacity. We're going to do a quick drive by and judge, I'm not a hundred percent familiar with everything on this plant. RO membranes here, these are the membranes right here. These are the membranes. It sounds like you know about them. You drive water, it's super high pressure down the middle, it comes out radially out and are they leaking? Yeah, right there.

background audio 10 (05:40:56):

That

Peter Kavounas (05:40:57):

Third, yes, I see it right. Huge power consumer. And so that filters out everything that isn't a water molecule ro, but it's a huge power consumer. What this is here is your standard primary treatment process here, and you can kind of tell by the age of the materials and the pumps that are sitting on top. And when we go around, you'll see additional treatment processes back on. The theme of every water treatment plant eventually needs to have increased treatment capability to remove more things. What you'll see here, these tall towers, IATION towers, that's a different treatment technique. They're what? Iation towers. So water is fed to the top and allow it to bubble down through a filter medium. And as it's going through, it's aerating because there's air blowing from the bottom and any volatile organic compounds, VOCs like T C E and pc, they volatilize in that process and they become an off gas that is captured, scrubbed, and then the water is now freed of those materials to the right. We have, I believe these are backwash tanks, these are chemical storage tanks and so on. But you have some aeration primary treatment RO treatment in this plant.

(05:42:29):

Say it again? Yeah, so the G A C was a recent addition, right? Andy was for Well, 18. Yeah, I believe so. Yeah. So again, an expansion of the treatment capability for volatiles, right, because after the wells were built, they found out, oh no, we have, yeah,

background audio 6 (05:42:49):

The RO does not remove

Peter Kavounas (05:42:51):

Volatiles. RO does not remove volatiles. So without going to much more detail, I'm at my limit in this plant in particular. Once again, you see the main primary and then additional treatment trains as new challenges have come up. The Chino airport, which has its own plume, is a major contributor to the pollution that is now hitting c D one.

background audio 6 (05:43:21):

You got security for these plants at night. Everybody's gone home. Seems like it'd be ripe for the picking.

Peter Kavounas (05:43:30):

Yeah, you

background audio 6 (05:43:31):

Would come in and

Peter Kavounas (05:43:34):

Yeah. Nice. Yeah, I don't know. So where might you say is the Chino airport immediately to our left? So the trucks are obscuring it, but you can see the control tower. That's a Chino airport back there. So all the contamination from the Chino airport is flowing with the groundwater down in this direction captured by the wells. As we're driving along, we will be able to see other C d a wells that are on that alignment that I showed you on

background audio 9 (05:44:24):

That map right there.

Peter Kavounas (05:44:27):
That's a new one right there.

background audio 9 (05:44:28):
So that might be a monitoring well associated with the plume monitoring

Peter Kavounas (05:44:40):
For the Chino Airport. Yeah. Yeah. That's one of the wells I believe on

background audio 9 (05:44:50):
The left. This is an old agricultural well there in the shed.

background audio 10 (05:44:56):
Okay.

background audio 9 (05:44:57):
But I'll point out to you. I can see straight ahead. There's this concrete block wall and that's one of the C D A wells

Peter Kavounas (05:45:10):
In here in this enclosure. Yep. So that's one in that series of wells that parallel the river that feed CDA one. Probably this one, C D A one, but either one or

background audio 9 (05:45:21):
Two. Yeah, that's for CDA one.

Peter Kavounas (05:45:29):
So we're going to skip CDA two. If we were to go to CDA two, you would see a much larger version. Put

background audio 6 (05:45:35):
A piece over here.

background audio 9 (05:45:40):
I believe there's stormwater capture and treatment facilities.

background audio 6 (05:45:46):
That's what Santana looked like.

background audio 9 (05:45:48):
Yeah.

background audio 6 (05:45:50):

Nineties before they cleared it out.

background audio 9 (05:45:53):

Yeah. Cool. Yeah, I think those are essentially to capture storm water and so it doesn't run off without being treated first. So Judge, do you know much about the proto basin? Have you heard?

background audio 6 (05:46:31):

Not really. Only that's again high school. I had a lot of the tournaments there.

background audio 9 (05:46:39):

Okay. Oh,

Peter Kavounas (05:46:40):

At the rec area

background audio 6 (05:46:43):

Park. But really that's about it.

background audio 9 (05:46:47):

Well,

(05:46:50):

It is the largest riparian habitat in Southern California and an important bird migratory stop. A lot of endangered threatened species. Call it home. The lease bells there go is one of those birds. As I mentioned earlier, groundwater is very shallow in that southernmost end of our basin and underlying Prado basin. And so that's that. Shallow groundwater is what is supporting the riparian habitat there. We call it a groundwater dependent ecosystem. And these desalt wells here, like I said earlier, were designed to keep water levels low, so we're not causing really shallow groundwater and more groundwater to exit our basin. But we play a little balancing game where we don't want to pump so much and draw water levels down so much that we impact the riparian habitat. So when the PEACE two agreement was completed, it included the expansion of these desalt and additional wells. And part of the qua commitment was to enact a monitoring and mitigation plan. So our desal pumping doesn't adversely impact the habitat

background audio 6 (05:48:23):

Sequence and the California government Poly?

background audio 9 (05:48:25):

Yes, yes.

background audio 6 (05:48:27):

There are only two secret judges in the county. Special training.

background audio 9 (05:48:31):

I think one of them is in the van with us.

background audio 6 (05:48:37):

Another complicated

background audio 9 (05:48:38):

Case. Yes. So Ton County Water District has a lot of interest in Prodo Basin because it's where they store storm water and try to slowly release it from the DAM so that they can recharge it all. So they just have a lot of interest in prodo and a lot of commitments to California Fish and Wildlife to preserve habitat there and not let it degrade because of their practices. So when they read our qua document about expanding our desalt, they raised their hand and they said, Hey, we don't want you messing up our habitat that we're responsible for. We want to come up with some sort of monitoring and mitigation solution. And so this was a good collaborative working relationship between the Water Master I U A and Orange County Water District to form a stakeholder committee, including the wildlife agencies in the U S B R.

(05:49:41):

And we all came together and developed a monitoring plan where we monitor the health of the habitat. We monitor groundwater levels, we monitor surface water discharges, temperature fires, pests, anything that could potentially impact the habitat. We're most concerned about groundwater levels. That's our main potential impact. And so that's the focus of our monitoring efforts. But we monitor it all and we prepare an annual report called the Proto Basin Habitat Sustainability Annual Report, and we get together as a stakeholder group at least once a year to review those reports and then modify our monitoring program if we think it needs to be modified based on the data that we're collecting. We're using a lot of remote sensing data to monitor the habitat. We're really applying just the best technologies that we can. We also drilled a number of monitoring wells along the edge of the habitat. We're going to one of those monitoring facilities right now to monitor water levels right next to the habitat. There are 11 wells. I believe there was more than that. There were nine sites, and I believe about 17 wells at nine sites.

background audio 6 (05:51:11):

Well, that's the best way to deal with ST issues is to try to collaborate with all the different stakeholders because otherwise the statutory scheme is really unremarkable, which is why they keep track perform every year, but they can't get any consensus on what to do about S Q L law. It was like three pages. Now it's about 60 just because it's single reaches things that they never thought it would reach. Essentially slow down building and take a step back and go, what mitigation can we do for squa because of this track of homes or that track of homes. But now it touches things like if you want to close down a school in enact the squa statute, we've been closing down buildings. You might need sometimes environmental review now traffic patterns.

background audio 9 (05:52:33):

Well, but

background audio 6 (05:52:34):

It's a huge overreach to the extent that when politicians want their pet project to go through, like say a football stadium, they accept it because they can't get a bill a secret, but everybody else has to deal. Yeah, right.

background audio 9 (05:52:55):

Well, the success of these stakeholder groups has been well demonstrated. Now it's just much better than fighting and litigating and just coming together and fighting some common ground and compromising. And I've just seen it really work in the time that I've been here putting together these stakeholder groups. And the Water Master is a number one demonstration of that. It's almost like democracy on steroids. Everybody coming together and

Peter Kavounas (05:53:30):

Listen to everyone ask for their advice. Yep,

background audio 9 (05:53:33):

Yep. Yeah,

background audio 6 (05:53:43):

And that's great that you're able to do that, but at the same time, you need a motion and a stipulation and you kind had to lay out how could day. I was really interested in, you can sue Peter who was telling me the difference between Judge Guns there. Well, getting the car drive around versus

Peter Kavounas (05:54:01):

Today where

background audio 6 (05:54:02):

We are today.

Peter Kavounas (05:54:03):

It's a different time. Different different time. Yeah. Mark Wildermuth, by the way, we were fortunate to have him work with us. Mark was a consultant for a large consulting firm. Then he created his own called Wildermuth Environmental.

background audio 6 (05:54:21):

That's where this came from.

Peter Kavounas (05:54:22):

Yes. Wildermuth Environmental was water master's engineer for decades until it was acquired by West Yost in 2020.

background audio 9 (05:54:32):

Was it? Yeah.

Peter Kavounas (05:54:33):

So now West Yost, so Andy went from a W E I employee to a West Yost employee. But because they kept their groundwater unit intact, that they basically absorbed what was W E I. We kept them as our engineer. They have the knowledge, they have the history of the basin. Mark was the one that had the vision about the role the Salters could play the two treatment plants, the wells, the lowering the water levels near the river, extracting the salt. He was incredibly curious, but an accomplished scientist and great groundwater modeler. And he had so much credibility with the regulators to help them see that that was the way to manage this basin. And of course, having the brine line, the Santa Ana river interceptor was a blessing that had already been built and there was a place to put the brine from the dissolves to export the salt from the base. Most of the things we showed you today didn't exist when Judge Gunn hopped in the car with Mark Wilder

background audio 9 (05:55:55):

Move.

background audio 6 (05:55:59):

Yeah, just some guy out there with a broom scrubbing.

Peter Kavounas (05:56:01):

Scrubbing the rock,

background audio 6 (05:56:04):

Then pour water over it.

Peter Kavounas (05:56:05):

Yeah.

background audio 9 (05:56:19):

Maybe this is Eastvale. Is

Peter Kavounas (05:56:22):

That, yeah. One of the things that in seeing all these sites, one of the things that really strikes me is the far reaching impact of groundwater management. How far have we driven today? And all the people, all the homes that we passed by all the businesses, 60% of their water comes from this basin. It's unbelievable.

background audio 6 (05:56:53):

Yeah. You're essentially managing the multimillion dollar resource to all the stakeholders. Yeah. Do you feel that way?

Peter Kavounas (05:57:07):

I do actually. I do. And take it very seriously. And sometimes it's a little frustrating. Not everybody feels that way when they come in, when they come into the office, they have a parochial point of view. But eventually we work through most of our challenges. So proto basin monitoring. Well, number three.

background audio 7 (05:57:42):
There you go. Grab my hats.

Peter Kavounas (05:57:47):
You're staying here. The door's open.

background audio 9 (05:57:50):
I'll close it. Step out.

Peter Kavounas (05:57:52):
Okay,

background audio 7 (05:57:53):
I got it.

background audio 9 (05:57:56):
This is called a weld cluster, one with a monitoring weld nest one borehole with a bunch of wells in the same borehole. These are two different bore holes. These wells are really shallow, though. One goes down about 50 feet, one goes down about a hundred feet because our depth of water is so much shallower here. But like I said, nine of these facilities were constructed all along the edge of the Proto Basin, which let's take a little walk down here. We call this LoDo basin, but this is actually the floodplain of the Santa Ana River. And we're sitting up maybe 30 feet above the bottom of the floodplain.

background audio 7 (05:58:42):
What city is this? This

background audio 9 (05:58:43):
Is East Bay

background audio 7 (05:58:47):
Where

background audio 9 (05:58:47):
We're in the basement. There's the Santa Ana river here. So we're right down, right around here somewhere right on the river. And so the river's flowing out there. All this vegetation is feeding off of the shallow groundwater. However, these monitoring wells behind us are measuring depth to groundwater that is below the bottom of the river there. So that means depth to groundwater in this location is deeper than the bottom of the river, meaning the river is percolating in and then becoming groundwater. And that groundwater is flowing towards our desal wells to be pumped. So this is a very important part of our water budget of the basin in this area of the Santa Ana river because it's providing groundwater to our basin. So it's part of our water budget, part of our safe yield. If we did not have the desal wells here, the groundwater levels would rise up, become shallower than the bottom of the river, and we'd have groundwater discharging to the Santa Ana river and flowing out. So we'd be losing groundwater yield

background audio 6 (06:00:14):

Plus it be

background audio 9 (06:00:15):

Contaminated, plus it

Peter Kavounas (06:00:16):

Contaminated. Bingo. Bingo.

background audio 9 (06:00:19):

So you've got it. You've got that point there. But that's kind of the balancing act that we're playing here is we want recharge to the basin from the Santa Ana river, but we don't want to adversely impact the habitat. So that's what our whole monitoring program's about.

background audio 6 (06:00:39):

It smells so good.

background audio 9 (06:00:40):

I know.

background audio 6 (06:00:43):

Can you actually see the river from here?

background audio 9 (06:00:45):

I don't think so. It's pretty thick. And this is a pretty wide floodplain to it, so it's out there somewhere. I dunno exactly. Well, but it's beautiful and it's very robust.

Peter Kavounas (06:01:02):

These wells were put in 20 12, 20 13, Andy? I

background audio 9 (06:01:06):

Think maybe more like 14. 14, 20 14.

background audio 10 (06:01:09):

Yeah,

background audio 6 (06:01:12):

Absolutely. Can you actually test the water from the

background audio 9 (06:01:17):

River? Yes, we do. Yep. The regional board, initially it was part of our monitoring program for the whole hydraulic control program, our maximum benefit monitoring program. They've allowed us to back off on testing the quality of the river. The U Ss G S does a lot of monitoring at proto and then upstream here

where it flows into our basin. So we rely on a lot of data from the U Ss G S, but we do still do some sampling of the tributaries that flow into the river and the river itself.

background audio 6 (06:01:50):
And how often do you do that?

background audio 9 (06:01:53):
It's usually quarterly, but yeah, we have another annual report called the Maximum Benefit annual report, and that's where we report on all of our monitoring of groundwater and surface water down in this part of the basin.

Peter Kavounas (06:02:11):
Anything related to the C D a hydraulic control is all part of the regional boards. Our commitments to the regional board. Monitoring is a big deal and reporting is a big deal. The nice thing about all the reporting is there's a robust record, a really good history of everything that's been done over time. Isn't this amazing? This is

background audio 6 (06:02:43):
Beautiful.

Peter Kavounas (06:02:43):
I mean, you would not imagine

background audio 6 (06:02:45):
The San Vein basin looking like

Peter Kavounas (06:02:47):
You would not expect that right now. You're

background audio 9 (06:02:50):
Going to look out at Lake Ocho and go, what

Peter Kavounas (06:02:52):
Herd?

background audio 6 (06:02:55):
Would this be a good spot for a group

Peter Kavounas (06:02:57):
Shot? We would love it. Absolutely. Alonso, would you mind? Actually, can you my

background audio 6 (06:03:02):
Phone too? Yeah.

Peter Kavounas (06:03:07):
Have the judge Brian. We go

background audio 22 (06:03:14):
1, 2, 3, take few and then we'll do,

Peter Kavounas (06:03:19):
We'll send you all the photos.

background audio 6 (06:03:21):
Okay, great.

background audio 22 (06:03:22):
Ready? 1, 2, 3. Perfect.

Peter Kavounas (06:03:26):
Nice. Thanks

background audio 9 (06:03:26):
A lot though.

background audio 6 (06:03:28):
Thank you.

background audio 9 (06:03:36):
Yeah, it's

background audio 22 (06:03:39):
It's

background audio 9 (06:03:39):
An important place biologically.

Peter Kavounas (06:03:41):
And what kind of water flows in the river? All recycled water from upstream.

background audio 9 (06:03:48):
Yeah.

Peter Kavounas (06:03:49):
Very little native, right, Andy?

background audio 9 (06:03:51):

Really? Mostly, yeah, very little native storm water. It'll get storm flows, but during times like this where there's no storms, it's mostly recycled water from San Bernardino, Rialto, and Riverside.

background audio 6 (06:04:03):

And the native flow would not support what you see here?

Peter Kavounas (06:04:06):

No, no. It would be a femural at best. Yeah.

background audio 9 (06:04:10):

When you think about it, the Santa Ana River and recharging the groundwater basin, it is a giant recycling project. And so the regional board obviously is just very concerned. That's why they regulate recycled water as they do, because they know it comes back into the drinking water supply.

Peter Kavounas (06:04:29):

And if you want to see at a little bigger scale, that recycled water came from some recycled water treatment plants, just like the one we saw. Those parts also have salt issues. Those basins also have salt issues.

background audio 6 (06:04:45):

Well, it's all recycled. We're all drinking dinosaurs.

Peter Kavounas (06:04:47):

That's right. Oh yeah. Right. And it's all part of the Santa Ana River watershed. Santa Ana River begins at Seven Oaks Dam. Actually, Andy and I have camped overnight at the headwaters of the river and goes all the way down to Newport Beach and the regional board cares about the entire thing. And there is a coordination under sapa, the Santa Ana Watershed Project Authority with different task forces that bring all the stakeholders together to talk about their little piece so you can effectively see the big picture.

background audio 6 (06:05:23):

But it really feels like this, at least your portion is really working

Peter Kavounas (06:05:27):

Well, it's working because yeah, the judgment, the parties collaborating, the O B M P and the Peace Agreement, the Peace two agreement. It's working because people

background audio 17 (06:05:37):

Have put

Peter Kavounas (06:05:37):

Time and money in,

background audio 6 (06:05:41):

And this is the byproduct and product with all the users using that water. We really, really amazing. This is the, well,

background audio 9 (06:05:55):

I know there's more to see if ever you're interested. There's lots of places to see in Prado Basin. Orange County Water District has a nice facility where they do a lot of their biology and

Peter Kavounas (06:06:10):

They're interested in how this wetland filters water naturally, biologically filters water. So the recycled water that's coming, how much cleaner does it get before it gets to them and can they, they enhance that natural biological activity. So we're going to hop back in the van and head back to the office. Chris, any thoughts, any,

background audio 20 (06:06:45):

You've covered a lot of information. You've done a really good job how it works. It's obviously important to all of us for the economy, obviously for our customers to have the supply available and subside, subside as an issue, ensuring that that water is there to keep those clays full as we spoke, is important. Thanks for spending the time coming up.

background audio 6 (06:07:14):

It's time well spent. I much rather be out here than in

Peter Kavounas (06:07:18):

Court.

background audio 17 (06:07:22):

Yeah, I would say non-ag parties are business and industry. Chris can tell you about a water treatment plant and I have no idea what's going on, but our folks obviously rely on it. I'd say non-ag traditionally wants to support the greater good of the family as we're sort of just generally speaking, big customers of the basin.

background audio 20 (06:07:45):

Controversy doesn't lie with Don Eggs.

Peter Kavounas (06:07:47):

Yeah, no, hardly ever.

background audio 17 (06:07:50):

I've never been here before, so this was interesting for me to see today as well. I had seen a couple of those spots we had been at today. When you guys do the Proto Basin report that you do for the, is it all over the place? Are we in the spot that you look at? Yeah,

background audio 9 (06:08:04):

Yeah, definitely. The monitoring. Well data we report on and then as far as our monitoring of the habitat health and yeah, we stretch all the way up and down the river and then

Peter Kavounas (06:08:15):

Up into there are aerial photos. Orange County pays for the aerial photos. There's also a vegetation transects. If you've never done vegetation transects, you haven't lived where you sheeps, you actually, you stand over here, stand over here, and we hold a string and we count how many leaves touch and then we just repeat and repeat to count. I'm not making this up. And then there's the

background audio 9 (06:08:37):

Freelance at data

Peter Kavounas (06:08:39):

Process that lances at data that show greenness. You

background audio 17 (06:08:41):

Didn't bring a string with you today?

Peter Kavounas (06:08:42):

No. So yeah, it's pretty intense. Actually. That report is not filed with the court. We do provide some updates to the court with our annual report and actually one of the tabs in our booklet has a page of that, but it is a great collaborative exercise. Okay, let's head back.

background audio 9 (06:09:11):

See, they recycled

background audio 7 (06:09:12):

Water here.

background audio 9 (06:09:28):

The butterflies are out.

background audio 17 (06:09:33):

I'm going to go back to where we started there. Now

Peter Kavounas (06:09:37):

Back to the

background audio 12 (06:09:39):

Yeah, we can go back and

background audio 9 (06:09:40):

See the views.

Peter Kavounas (06:09:41):
Yeah. Yeah.

background audio 9 (06:09:44):
Should have ended

Peter Kavounas (06:09:45):
There, huh? Well, no, I think it was good to start there. Brian, if you could reach me another drink, it'd be great.

background audio 12 (06:09:58):
I'll have one. Yeah. Thank you.

Peter Kavounas (06:10:06):
Yes, please. Thank you. Judge, are you okay on water?

background audio 12 (06:10:09):
I'm good. You need beer in that

Peter Kavounas (06:10:10):
Chest? Yeah.

background audio 12 (06:10:14):
It's Friday,

Peter Kavounas (06:10:14):
Right? It is Friday,

background audio 7 (06:10:16):
Right.

Peter Kavounas (06:10:22):
Judge Alonso has been very quiet today and didn't have a chance to introduce him to you. Alonso is one of our staff. He's been with us five years. When's your anniversary? Alonso? On Monday. On Monday. Five years on Monday. And he does a lot of our field data collection. He's been doing that for the last five years and he's just been promoted and will now be teaching a couple of new guys on how to do that work.

background audio 6 (06:10:48):
Congratulations. Motion. Thanks for driving us around and keeping us to our station safe. Of course. Hopefully you'll jin it

Peter Kavounas (06:10:56):

Before

background audio 6 (06:10:57):

We get back to the office. Oh, no, thank you, judge. It's been a pleasure.

background audio 10 (06:11:02):

It's been nice to

background audio 6 (06:11:07):

Be part of this, so thank you. It's a great tour. Felt like I got the etic tour. Yes. You remember those? Yeah. But they have those anymore.

Peter Kavounas (06:11:26):

That's probably some digital equivalent now

background audio 6 (06:11:28):

I hear they're even restricting those season passes. You can only go certain days. You can buy a of fee tickets on eBay, but will cost you like 20 times with the actual ticket back in 1969. Cost. They are like collector's items. Yes. Wow. Reason why I know because I bought 'em. Because when I was going to these land, it's like $5 and 65 cents for fucking tickets. That's a kid.

Peter Kavounas (06:12:05):

My guess is it was not crowded then.

background audio 6 (06:12:08):

I just remember it always being crowded, to be honest with you, when you're 10 years old, the 32nd wait is too long in wine. Yeah,

Peter Kavounas (06:12:17):

That's right.

(06:12:20):

I had probably the most fun I had at Disneyland was for work. Before I came to work for Water Master, I was working for the city of Glendale. I was very involved with the Association of California Water Agencies and we did a tour of the water works of Disneyland. Disneyland is a circle and all the maintenance facilities that support the park are in a circle around the circle. So we walked all around the park and our tour guide, who was the maintenance manager there, had a great sense of humor. And so every often he pop open a door would be at the head of a ride. We jump on the first train ahead of everybody else, take the Indiana Jones ride and pop back out and walk onto to the next one that

background audio 6 (06:13:11):

Felt, that's a tour I want

Peter Kavounas (06:13:12):

To be Right. That was a great tour. He also told me that the Disneyland employees have the park to themselves before it opens to the public. So they do canoe races and all the water lagoons and they have parties of their own.

background audio 6 (06:13:57):

Well, I've lived in this area for over 30 years and kn say I've driven here two years, but it's never driven through.

Peter Kavounas (06:14:08):

The Eastvale is fairly new, I'd say.

background audio 6 (06:14:15):

Yeah. I didn't even realize that Eastvale actually bordered the river. I was kind of surprised.

Peter Kavounas (06:14:32):

And Eastvale is a city, an incorporated city, right? I think so, yeah. I don't think it's county. What was the most interesting QL case you ever had, judge?

background audio 6 (06:15:33):

Boy, I would have to say the most interesting QL case that I had was the gold miner case.

Peter Kavounas (06:15:47):

Gold

background audio 6 (06:15:47):

Miner. What? The gold miner case. Oh yeah. So you might not think there's any gold mining going on in San Bernardino, but there is really? Did you know there's gold mining going on?

Peter Kavounas (06:15:57):

I did not know that.

background audio 6 (06:15:58):

Yeah. In fact, there's so much gold mining going on that there was litigation about it because I mean, there's one way to pan for gold and it's you stick your little pan in the river and you shake it around and the gold floats to the bottom. And that's not exactly environmentally insensitive, but that's also not going to make you rich. The way to get rich, if you can get rich, actually, it's people that sell gold miners equipment that get rich, right?

Peter Kavounas (06:16:29):

Yeah. Right. That's

background audio 6 (06:16:30):

Who got rich the

Peter Kavounas (06:16:31):

Gold,

background audio 6 (06:16:32):

The more the mercantile guys, then the guys actually do looking for the gold. But another way that they do it is they'll go in with a gasoline powered engine and they'll suck the river bottom of sediment and put it through a slusher and then get it. It's a little mining operation is what it is, but it's portable. And so a couple of environmental groups got wind of what was going on. And this is actually going on up and down the state. And so in conjunction with a couple of Indian tribes sued under qua, and there's a very kind of vibrant community of Yosemite Sam types that want to mine for gold however they see fit and the issues with the money for gold, especially if you're using a vacuum operations that you're churning up above that river bottom. So you're churning up hatchery space for fish, obviously, that lay their eggs, Sandy bottom, rocky bottom.

(06:17:44):

And you're also churning up all of the chemical pollutants that have settled to the bottom of that river over the decades and decades of mining and just natural pollutants. Interesting. Kind of similar to the Owens River situation. Did somebody work on Owens River Valley? You do? Yeah. Okay. So you know about how when they drain the Owens Lake and when the wind, so it's dry, the winds come through below up all that stuff from the bottom, which then goes close Airborne and Owens River Valley sued LA over that, which forced them to put water back in there just a couple inches just so it wouldn't do that because the air pollution issue, not the same thing, but this is all taking place under water. So when you're sucking up all that river bottom, it doesn't come up and then sink right back down. It's now taken the flow.

(06:18:46):

It's moved. Yes. Right now taken the flow and it could be miles downstream before it actually settles. So it had a lot of downstream consequences. And for whatever reason, all the 58 counties were involved in this litigation under qua, and they decided to put it in the court that could deal with it the least, the most overcrowded, which was San Bernardino. And I mean there some mining operations going on, but not nearly what might be going on in Shasta County or one of those counties in the far north. They might have a better shot at the striking orders. Anyway, it all ended up here in my court and every time we had a hearing, the courtroom would be packed. There'd be all these gold miners. Oh God. That the audience that were very vocal and whenever I ruled against them, I'd get lamb blasted. Social media was kind of new at that time, and whenever I ruled against the tribes or Sierra Club, they loved me for a month. It was interesting because first of all, I didn't think there was going, but there is, and people might both up there, but there were so many different stakeholders that had been a part of that litigation and that was a litigation that had been going on for over a decade. And so it had been going on for 15 years. It's very contentious Department of Fish and Wildlife was in on it. And they start out at the beginning of the litigation as Department of Fish and Game. And by the time the litigation department,

Peter Kavounas (06:20:46):

Fish and Fish and Wildlife, right.

background audio 6 (06:20:48):

Life changed. I talked to 'em about that and I just thought that that was really interesting because of how you don't really think that some guy mining Gold Mountain would trigger and what the delirious

effects of the gold mining operation would be, even if it's just like a one two complication, the environment. But ultimately they ended up settling that lawsuit and it ended up needing a change in the law so that everybody was going to help with, but it was pretty complicated.

Peter Kavounas (06:21:38):

So did it become a thing that can be permitted or was it the thing that was outlawed to do this vacuum? Well,

background audio 6 (06:21:46):

The vacuuming was outlawed. Outlawed. Yeah. They pan do the panning.

Peter Kavounas (06:21:53):

They could passed. I found it fascinating that the initial stages of gold mining were hydraulic mining. I don't know if that came up at all in the court proceedings, but they'd pressurize water and shoot it out of a water cannon at a hillside.

background audio 6 (06:22:20):

Yeah. Well, that type of uber destructive wine was outlawed. So that

Peter Kavounas (06:22:26):

Was, that's no longer,

background audio 6 (06:22:28):

That's like something or two in the Brazil or taking whole swats of forest out with a water pipe dis. Yeah, they could never do that. I mean back maybe 1870s.

Peter Kavounas (06:22:43):

Yeah, 19th century stuff,

background audio 6 (06:22:44):

Not nowadays.

background audio 10 (06:22:46):

Yeah,

background audio 6 (06:22:54):

But I thought the silliest secret case I had was that one that I mentioned about he closed down the school and that triggered the single lawsuit district population

background audio 10 (06:23:05):

Right there.

background audio 6 (06:23:08):

That districts losing population. So they closed down and then all of a sudden there's a bus. They can't close down the school. They don't have the money to run it. There's no students to go there. What do you mean you can't close down? What I mean, I can't close down the school

Peter Kavounas (06:23:21):

In the school district. That's subject to qua. Huh?

background audio 6 (06:23:26):

Personally, anything could be subject to se interest to have an inventive attorney, which is the problem with SE L.

Peter Kavounas (06:23:32):

Yes.

background audio 6 (06:23:34):

Which is why it needs to be reformed

Peter Kavounas (06:23:41):

Then. You're right. It'll be very difficult to reform it, if at all.

background audio 6 (06:23:47):

So the governor wants it reform, but even he can't do it. So if you're the governor and you can't get it done, get it done, he realized it needs to be performed.

Peter Kavounas (06:24:01):

If you could make one change to CE ql, what would your change be?

background audio 6 (06:24:09):

I think you have to be an actual stakeholder issue. CEQs too easy for anybody to come in and challenge it. Also, fees provision that only drives litigation. You should never be able to get attorney's fees, litigation like that.

Peter Kavounas (06:24:28):

It's free. It's free to litigate.

background audio 6 (06:24:30):

It's essentially free to litigate because all you have to do is get a settlement and then if you're right back

Peter Kavounas (06:24:36):

In court, your fees are,

background audio 6 (06:24:38):

Which could be $10,000, but because you litigate 'em for five years, you have a $3 million cost bill. So that unfortunately, fees any statute that's connected to attorneys fees. It's always bad idea. But only actual stakeholders should be able to be able litigate for stuff. I mean, there's a lot of things that, and it should only be building projects over a certain amount of money or square footage and the person filing laws. It should have to show actual harm before they can go forward. You can't just do, because your reason I'll ask.

Peter Kavounas (06:25:39):

Yeah, it can't be an abstract. I think you're violating qua here without really saying, and it's causing me harm this way

background audio 6 (06:25:52):

Without having to stay open You, you're not a stakeholder just because you're the Sierra clip.

Peter Kavounas (06:25:57):

Right.

background audio 6 (06:25:58):

We want the world to be beautiful. You have to live there, there somehow connected

background audio 10 (06:26:06):

To

background audio 6 (06:26:07):

The project approaching on your land that I'm a city over and it's got my airspace school because no traffic patterns are going to be, that's not significant in the freezer.

Peter Kavounas (06:26:29):

That's crazy. What's the alternative to shutting down the school? You're supposed to have alternatives. Right? Right.

background audio 6 (06:26:41):

And because of the cost of all, especially if you have to do an environmental report, it ends up being very prohibitively expensive litigation.

background audio 9 (06:27:00):

What is going on here? All these piles of dirt and

Peter Kavounas (06:27:06):

It looks like a disposal site.

background audio 10 (06:27:08):

That's an import job

background audio 9 (06:27:11):

Soon to be a

background audio 6 (06:27:12):

New

background audio 10 (06:27:12):

Development. That's true. Cut

background audio 9 (06:27:34):

The cutting here and then

Peter Kavounas (06:27:36):

Exactly filling here. Yep. You can see where the last housing development has stopped and it's about to move further and further south. Yeah.

background audio 10 (06:28:09):

This is Ontario Grove.

Peter Kavounas (06:28:12):

Yeah. All Ontario

background audio 10 (06:28:14):

Trying to secure.

background audio 6 (06:28:18):

So you kind of contrast with where we are with secret today. But the flip side of that, for instance, when my mom and dad bought their house in 1949 in Norwalk where there were no rules and he just bulldozed over Dairyland, every house had an incinerator, so there was no trash pick. Everybody just burned their own trash every day. And just that obviously was a disaster.

Peter Kavounas (06:28:51):

That doesn't work either. Yeah,

background audio 6 (06:28:53):

That doesn't work either. The whole rules don't work.

Peter Kavounas (06:28:56):

Yeah.

background audio 6 (06:28:56):

Very well at all together.

Peter Kavounas (06:28:57):

Yeah. It seems like the secret has to be reasonable rules, common sense and obedience to the common good

background audio 6 (06:29:09):

And collaborative efforts. What you guys are doing. Yeah.

Peter Kavounas (06:29:41):

Your clerk chose not to come with us today.

background audio 6 (06:29:44):

Yeah. There are liability issues.

background audio 10 (06:29:49):

Heard

background audio 6 (06:29:50):

To get into an accident. Sure. Got hurt her.

Peter Kavounas (06:29:56):

Oh, interesting.

background audio 6 (06:29:57):

Her director said no.

Peter Kavounas (06:30:00):

Okay.

background audio 6 (06:30:06):

Surprisingly, she doesn't work for the same F D I I worked for the state and she's a county employee. So 15 years, 20 years ago, everybody was a county employee, but they decided to split the judicial branch off into a state agency and 20, it is 20 years later. We're still kind of in that phase. Interesting. Eventually they'll work for the state, but right now they're still counting,

Peter Kavounas (06:30:36):

Still counting. Well, our office, Ruby in particular, reaches out to your clerk on a regular basis for coordination and is very happy with the relationship, the responsiveness, the helpfulness of the clerk. So we're very grateful for that.

background audio 6 (06:30:57):

Yeah, Jennifer is very helpful. She's got a lot of good people skills and try to pride ourselves on customer service. The courts are here to service the community, not vice versa. His attorney, I've been in courts that have the office of view, but everything I do is based upon my P T S D for being a lawyer

Peter Kavounas (06:31:27):

Treated for churches. You have role models of what not to do being raised by bad

background audio 6 (06:31:36):

Parents. In fact, the reason why I decided to get on the bench was because in my 22nd year practice, I had a mandatory settlement conference in la and that's where you sit down, it's where you sit down with the judge already tried to settle the case before you got to go, just you got to trial. And the judge brought us back into chambers and it was like a handoff case or something in our office. So I'd never had dealt with this judge before and sat us down. He asked, plaintiff goes, so what's your case about? My attorney told him what the case is about, nothing crazy, just kind of the usual stuff. And he turned to me and he goes, so what's his case about? Asked me the exact same question and he got three words out of my mouth. And he goes, you're full of shit. And I said, I thought he was choking. And I said, excuse me, because you're full of shit. And before that, when we walked into the chambers and reintroduced selves, he didn't want to shake my hand. You can't just introduce yourself. So I left my hand out there for us five minutes, I'm sure it was only 30 seconds. Finally took it begrudgingly.

(06:32:59):

So anyway, the M S C kind of went downhill from there. And it turned out that the housing council was a friend of his. So he was trying to strong arm me so he'd get a better settlement friend. Very nice. And this was in front of my client. And so my client walked away with the impression that that judge was kind of a jerk, but the overall impression was, this system is against me. How can I possibly get a fair trial in our system of justice? Which is why a judge can never have a bad day on the bench because people don't interpret as, oh, judge is having a bad day. It's the system's against me, which we have a system that for it to work, people have to buy into it. If you're not going to buy into it, system can't work. And so in any event, I went back to the office and I said to myself, I go on my worst day, I can be a better settlement judge than that guy. Because I thought, be a judge. You've got to have lots of patience, lots of wisdom. You've got to know everything. I don't think I could do that job. But I said, well, if that guy could do it, I could do it. I come to find out, you don't have to know everything. You don't have to be all that wise. But in any event, so that evening I filled out an application to submit to the governor. Oh,

background audio 23 (06:34:32):

So you were

Peter Kavounas (06:34:34):

Worked up about it. Oh

background audio 6 (06:34:36):

Yeah, he worked it. I thought that was really unfair when he did it. It's not appropriate. And the only time I ever complained to the judge, you have a commission on judicial performance that governs our conduct. Is the

background audio 9 (06:34:49):

Recorder underneath the seat? The batteries really

Peter Kavounas (06:34:51):

Low. Okay. Lemme take, lemme

background audio 9 (06:34:54):
See if I can reach it.

Peter Kavounas (06:34:56):
Okay. It's not mine. No, no, it is the big one. The big one.

background audio 9 (06:35:00):
It's on top. Facing the top right. I'm sorry, top left lever. Okay.

Peter Kavounas (06:35:09):
The truck backing the red lever. Okay. That's our backup system. Oh, maybe not.

background audio 9 (06:35:19):
It should be on top of the recorder

Peter Kavounas (06:35:23):
Left side. Oh, got it.

background audio 6 (06:35:28):
I think that

background audio 9 (06:35:29):
Did,

background audio 6 (06:35:30):
Wait a minute. I filed a complaint against the judge between commissioner of judicial performance, laid out all of the judicial candidates that he violated, and they sent me a letter saying, thank you for your complaint, whatever. Never heard from him again. But 11 months later, within a two week time span, I got a call from the governor's office appointing me, and I got a letter from the commission saying, judge had been disciplined 11 months later. And so that experience, which I think was a really good experience to have prior to becoming a judge because you know what, the effect of somebody who comes at a table that's biased is not going to be fair. How that really has a cancerous effect on the system of justice. So you can't really have

Peter Kavounas (06:36:31):
That dog much more than the case itself. Absolutely.

background audio 6 (06:36:36):
It's judging.

Peter Kavounas (06:36:38):

I always tell

background audio 6 (06:36:38):

People, I'm not here to carry your flag. I'm not here to carry guys likes here you level playing field. How did you play out your case?

Peter Kavounas (06:36:47):

I had an instance where I'm not an attorney like you, so I didn't have the option to become a judge, but if I did I probably would've done the same. I went to a small claims court one time. I felt an attorney had wronged me prior life, prior experience. Not pertinent here, but so I went to small claims and the judge called me up and he had received a full briefing by the attorney's attorney, had read it in chambers and came out and gave me his opinion.

background audio 6 (06:37:24):

They can't do

Peter Kavounas (06:37:24):

That.

background audio 9 (06:37:26):

I'm, I'm the

Peter Kavounas (06:37:26):

Poor little schmuck here who I don't even have an attorney. I need you to protect me and my rights, help me find my way. You can't just tread on me and not give me a chance to explain.

background audio 6 (06:37:40):

Plus you can't read anything that you didn't get an opportunity to see. Just by every time I get something from the parties, everybody else has to become right. There's got to be a proven of service, otherwise that's a due process issue and you can't go forward because the other side hasn't had an opportunity to be heard. But I got to tell you, my 22 years, I guess the judges do stuff that I'd never get away with it in a million years, but

Peter Kavounas (06:38:12):

Well, you wouldn't put yourself

background audio 6 (06:38:13):

That Yeah, I wouldn't do it, but I mean just some crazy stuff.

Peter Kavounas (06:38:23):

What's the part you like most

background audio 6 (06:38:25):

About being a judge? Yeah, the part I like most is I get to come to work every day and just try to do the right thing consistent with what the law is. So you obviously have a lot of discretion. The favorite part of my day is sit down with attorneys before we walk into the courtroom, start a trial every day, but we're sitting down, we're talking about the case, we're drinking coffee, having a dumb, just talking about stuff and what we're going to do today, what they're going to do on the weekend and get to relate to them in different way when you're on the bench and they can't approach you 20. So I like the fact that you have a lot of discretion to do the right thing. You got to try to do the right thing and sometimes that state really challenging on cases, but I think the civil justice system still works pretty well. Criminal justice system is free, the state free, unfortunately justice system is still working.

background audio 10 (06:39:53):

Continue

background audio 6 (06:39:59):

And plus getting out tickets helps too. No kidding. Now I'm going to say that when I do a murder, just kidding. Can we turn these microphones off? Actually that's not really funny because, I dunno if you heard about that judge in Orange County, judge Ferguson? Yes. That shot his wife. I actually worked with him in the DA's office. Oh really? Yeah, and that's terrible things. It's very, back then he was very friendly guy and not somebody that you would think be capable of doing that. How you go from not having speedy ticket your whole life to shooting your wife? Like range. It's got to be more to that story.

background audio 9 (06:40:58):

Well wasn't he drinking or something like that?

background audio 6 (06:41:01):

Yeah, he was a drinker back then. We were all kind of drinkers, but I don't care how drunk I would get. I don't know how you put a gun into your wife and pull the trigger.

background audio 9 (06:41:22):

Yeah, that's still a big leap. And alcohol affects different people different ways,

background audio 10 (06:41:39):

That's

background audio 9 (06:41:39):

For sure. Now the Americans are getting run over in the Ryder Cup, six and a half to one and a half. Is that golf fan? Yeah, it's Europe against the United States Golf Tournament that they do every two years. Does one side have a winning record or the other? The Europeans have had the Americans number recently. I think in the old days the Americans, it was all American would always win. But nowadays the Europeans middle most of the time.

Peter Kavounas (06:43:34):

And where is it held?

background audio 9 (06:43:37):

It alternates between America and somewhere in Europe. This year it's in Spain,

background audio 10 (06:43:43):
I believe.

background audio 9 (06:43:47):
Maybe it's wrong.

background audio 6 (06:43:53):
Are you a big golfer?

background audio 9 (06:43:54):
I am. Andy's

Peter Kavounas (06:43:55):
A big golfer.

background audio 10 (06:43:57):
Yeah.

background audio 6 (06:43:57):
Where do you play?

background audio 9 (06:44:00):
I live in San Clemente and there's a little golf club there called Bella Lina. It's 27 holes back right against the Cleveland

background audio 6 (06:44:11):
National. Did you say 27 holes?

background audio 9 (06:44:12):
It's 27 holes, yeah. Is it a couple

background audio 6 (06:44:14):
Courses?

background audio 9 (06:44:15):
Well, there's three nine hole courses, so we'll play. We have three different rotations then. Just nice. It's a nice mix up. Tomorrow there's one of my friends has a big birthday party and we're having a big giant game and we're going to kind of do it Ryder Cup style little teams.

Peter Kavounas (06:44:40):
I want to be on your team, Andy.

background audio 9 (06:44:43):
It's some golfers there that are better than me.

background audio 10 (06:44:49):
What

background audio 6 (06:44:49):
Kind clubs you have?

background audio 9 (06:44:50):
What's that?

background audio 6 (06:44:51):
Clubs. You have

background audio 9 (06:44:54):
MNOs for my irons and tailormades for my woods. That's Cleveland wedges. Little mixed bag. You play golf?

background audio 6 (06:45:08):
I don't know if I would call it play golf. I try my hand. I golf every once in a while.

background audio 10 (06:45:16):
I

background audio 6 (06:45:21):
Love going to, what's that? Golf I can get put in over here. Oh, top flight. Top flight. Yeah. I love that place.

background audio 9 (06:45:32):
Yeah, I haven't been to one of those yet. I hear they're really fun.

background audio 6 (06:45:37):
I just played in a chorus. Took a boys trip last month. Went to Mammoth

background audio 9 (06:45:45):
Near Mammoth.

background audio 6 (06:45:46):
Mammoth. Oh yeah. There's a really beautiful course there called, it's called Sierra something.

background audio 9 (06:45:55):
Yeah, Sierra Star.

background audio 6 (06:45:56):
Yeah, exactly. That's a nice course. Yeah.

background audio 9 (06:45:59):
Is that the one with all the trees aligning that?

background audio 6 (06:46:02):
Yeah,

background audio 9 (06:46:04):
There's another course up there too that's more out in the wide open,

background audio 10 (06:46:07):
But

background audio 9 (06:46:09):
I've never played either up there, but I've always seen.

background audio 6 (06:46:14):
But you feel like you're a power player when you go there because of the thin air balls Go farther than the straighter man. I'm great.

Peter Kavounas (06:46:24):
I'm really, really

background audio 6 (06:46:24):
Good at this. You come back down here and then you're lousy again.

background audio 9 (06:46:32):
The mountains are beautiful now we can see 'em.

background audio 6 (06:46:34):
Can see exactly Crystal

background audio 10 (06:46:40):
Well

background audio 6 (06:46:42):
Shall we go up potato on the falls. So how far do you go? What's your average drive when you get up on the tee?

background audio 9 (06:46:59):

Well, I mean a good drive. I can get all like 275 yards or something like that. A good one. I played my whole life though, so I learned at a very young age, people that knew how to play golf, so they kind of taught me the right way. Never really lost it. I stopped playing for many years but then got back into it about 1990.

background audio 6 (06:47:26):

And how old are you now?

background audio 9 (06:47:27):

I'm 59 now.

background audio 6 (06:47:29):

Do you feel like you're

background audio 9 (06:47:32):

I'm better now than I ever was.

background audio 6 (06:47:34):

Really? Yeah. So you don't think that, obviously you're less flexible now than you were in your twenties. You don't think that was a, I

background audio 9 (06:47:40):

Think I'm better up

background audio 6 (06:47:41):

Here. You

background audio 9 (06:47:42):

Know what I mean? I used to overthink things

background audio 6 (06:47:46):

Better within the green zone.

background audio 9 (06:47:47):

Yeah. Yeah. I don't get as nervous anymore. And it's really a mental game more than a physical game.

background audio 6 (06:47:57):

You have to be sober to get nervous. Yeah,

background audio 10 (06:48:01):

That's true.

background audio 9 (06:48:08):

Also, playing at a club and we play for money a lot and everything and once you learn how to play under that type of stress, you just get better. Mostly comes down to short game anyhow.

background audio 10 (06:48:30):

Yeah,

background audio 6 (06:48:33):

It's nice to last 207 yards, which I don't. Yeah, but it's really how good you play with you. 60 yards of the hole. What's that? It's how good you play with 60 yards of the hole.

background audio 9 (06:48:45):

Yeah. That you have to play a lot to get good at that,

background audio 6 (06:48:50):

But everybody loves to blast it.

background audio 9 (06:48:53):

Love to hit it long. You

background audio 6 (06:48:55):

Got to look good off the tea.

background audio 9 (06:48:57):

Should be missing. Little teeny putts. It's just the same thing as a big giant drive. It is one of the few sports that you can get better at as you get older. Every other sport you get worse at.

background audio 6 (06:49:25):

Well that's good to know. We just had a judge's top golf, an Audi about two months ago. That was really fun. Nice.

background audio 9 (06:49:45):

I had to go check out one of those places.

background audio 6 (06:49:49):

It's fun because you don't feel that pressure, but when you're on the key, everybody's just out there helping time and not really watching the people next to you. It is just your little groove. Yeah. Yeah. And being monitored is always fun far as how far the drive goes when you out get or slicing it. Yeah.

background audio 9 (06:50:20):

We have some pretty fun technology now. Or indoor type of golf.

background audio 6 (06:50:26):

Oh yeah, you did an indoor setup and they're actually pretty accurate. I have a Garmin set up at home tend in the backyard, but I'd like to have one indoor set up. Eventually. You're supposed to the waters that you have at for 40,000 waters, but for $500 you get a garment or restaurant, they'll be one to three percentage points of accuracy. 40,000 machine. You don't really need to if you're swinging and you're just trying to work on your technique and you just want to get out there and you don't want to drive to the golf course so it's not going to matter whether if you hit 200 yards or 230, 30 yards. They're pretty accurate. And it goes off of an algorithm that they've tested side by side with somebody hitting the ball in real time on golf course.

background audio 9 (06:51:32):

They're pretty cool. Do you have anything like that Uhuh? No. When I go out and work on my game now I work on my short game. That's what wins or loses your money. Oh yeah. It's the short game. The short game, the putting the checking. Can't really do that indoors.

Peter Kavounas (06:52:35):

No,

background audio 10 (06:52:35):

No.

background audio 9 (06:52:40):

Route 66.

background audio 6 (06:52:50):

That's kind of cool if they didn't tear down that service station.

Peter Kavounas (06:52:53):

Yeah, it was decrepit. I know. For a long time. For a long time. And they rebuilt it to replicate what it was.

background audio 10 (06:53:03):

That's very

Peter Kavounas (06:53:03):

Cool now. Yeah, it's a nice little showpiece

background audio 10 (06:53:55):

Gift.

Peter Kavounas (06:53:59):

Is there a gift shop inside? That's what the science said. I

background audio 9 (06:54:03):

Never stopped by

background audio 10 (06:54:05):

You guys. Go check it out.

background audio 9 (06:54:23):

Thanks for driving, Alonzo. My pleasure. Yeah, good job. Appreciate

background audio 6 (06:54:27):

It.

background audio 10 (06:54:27):

Thank you. Thank you. It's been a fun day. Historic day.

Peter Kavounas (06:54:37):

Yeah.

background audio 6 (06:54:56):

Hopefully the next judge tour won't be 20 years from now.

Peter Kavounas (06:55:00):

Yeah, let's hope not. Please do. Take us up on the offer. Any one thing you want to see. Happy to arrange it.

background audio 6 (06:55:21):

Peter. Thank

Peter Kavounas (06:55:21):

You. Thank you. Did you have anything in the office?

background audio 6 (06:55:25):

Oh no I didn't but I did

Peter Kavounas (06:55:30):

And I do need to collect your recorder. Chris, thank you for joining us. Thank you. I appreciate you spending that. Hopefully you saw Thank you. A something you hadn't seen before. I saw things. Good. Absolutely judge. Thank you Judge. Thank you again. We'll see you. Appreciate it. It was a

background audio 6 (06:55:48):

Pleasure meeting you. Pleasure meeting all of you folks. Hope to see you again someday. It was a great tour. You guys did a fabulous job and thank you. I just so appreciate all the information. I just feel so much smarter. Hope it was helpful now than when I got here this morning. Good. On the location. So I just really appreciate it.

Peter Kavounas (06:56:07):

Anytime, anytime. See you in court. Yes. Have a great weekend. Brian. Thank you so much. Alright gentlemen.

background audio 7 (06:56:14):
Thanks

Peter Kavounas (06:56:14):
For driving. I'll take that

background audio 17 (06:56:16):
One tidbit of info I shared with Pearson and I shared with Alex already because I will not be here for advisory next month.

Peter Kavounas (06:56:23):
Okay.

background audio 17 (06:56:24):
I'll be on an airplane.

Peter Kavounas (06:56:25):
Alright. Hopefully somewhere Good.

background audio 17 (06:56:27):
I'm coming back from Florida.

Peter Kavounas (06:56:28):
Okay, next month. Advisory a

background audio 17 (06:56:30):
Allegedly the high speed internet on Delta's planes. It's good enough for me to listen in, but I can't

Peter Kavounas (06:56:37):
Participate. No guarantees. Got it. I can't promise 5,000

background audio 6 (06:56:40):
Feet.

background audio 7 (06:56:41):
Good job today.

Peter Kavounas (06:56:42):
Thank you Brian.

background audio 6 (06:56:44):
Guys still before that?

Peter Kavounas (06:56:48):
Yeah. You'll be here at pools, right? I

background audio 6 (06:56:50):
Will

Peter Kavounas (06:56:50):
Be at pools. Okay. Okay. See if I can, who's we? Go check in with the guys. Yeah. Hello. Hi

background audio 7 (06:57:13):
Peter, you're

Peter Kavounas (06:57:14):
Back. Back

background audio 7 (06:57:16):
And

Peter Kavounas (06:57:16):
Better maybe we'll gather around the table here in San Vein. Okay. Hello? Hi. Yeah, let's get everybody in San vein real quick. Okay. Andy? Hey, we're going to, yeah, let's debrief in Sylvania.

background audio 7 (06:57:33):
Anna did go to the rent to the bank. Do you want to wait for her?

Peter Kavounas (06:57:36):
We can get started. She'll catch up with us. I need to use the restroom also. So maybe a couple of minutes. Okay.

background audio 24 (06:58:14):
Okay. Welcome back Peter. Hey Jordan, can I ask you to please take these? Yes ly. Where you headed? I'm sorry, I was just about to finish wiping off your Oh, okay. I'm sorry. I thought you were coming in for these. No worries. That too. But they need to be stopped because you're still recording and we're done with the tour and then we'll talk, we'll all gather around here in a couple of minutes. Sounds good. So join us when you can. Happily the absolutely too. Okay. Thank you.