background audio 1 (00:00:00):

Good morning. Good morning. I'm Peter. Yes. Malone. Engineer. Yeah, engineer. How many geologists? He's water master engineer. Brian, this is Brian Guy. Nice to meet you. Brian Guy. Brian Guy is the chairman of the overly non agricultural pool commission. Okay. He's one of the pool representatives. Yes, one of the pool representatives. This is Alonso Rado. Hi Alonso is staff. He's our designated making sure all arrangements for, and Alonso will actually mic you up. We could ask you to sign in if you'll you up. I think we have a couple of, okay. You're liking to adjust and how do I turn off when I start cussing? That's a tough one. Yeah.

(00:01:23):

Lemme introduce you to Mr. Finra. Judge, this is Bob Finra. Bob FINRA is the chairman of the Overlying Agricultural Court Committee. He's also an observer for the tour today. Alright, and this is Kelly. Kelly works at. So this is us for today. We have three observers. You have Andy and myself. We're very comfortable going by first name. If pleases you, it'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.

(00:02:28):

We're going to hop in the van, we're going to follow an itinerary. 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'll be referring to those during the tour. And finally, we have a laminated map because we love maps. Any questions?

background audio 3 (00:03:40):

Can we just grab this stuff

background audio 1 (00:03:41):

Now? Yes, please. Please. By all means

background audio 3 (00:03:44):

That on my phone.

background audio 1 (00:03:48):

So

background audio 3 (00:03:53):

Introduction, I know you've all introduced yourselves, but I'm really kind interested in your background that brought you here.

background audio 1 (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. Agricultural pool is number one. They also hold the largest water. Right.

background audio 3 (00:04:16):

And again, Mr. The Ag,

background audio 1 (00:04:19):

Mr.

background audio 3 (00:04:20):

Ag and the appropriate,

background audio 1 (00:04:22):

So Mr. Fester, please introduce yourself in a little bit. You have gloried and storied history in the basis. So please,

background audio 2 (00:04:31):

Your Honor, I'll keep him really short. I can go on.

background audio 3 (00:04:36):

Well, you tell me all day.

background audio 2 (00:04:38):

To 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 a lot of water to the cows. We had 400,000 cows out here. We also had a lot of farm ground. Notice the word also, but 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, LA Palma, the cows sort of moved to the east.

background audio 3 (00:05:55):

So the base and its history is changing, which is what brought us all here. We recognize that in the seventies and that's why the judgment in 78 came to being because from the twenties and thirties, which is primarily agriculture to the seventies where it's a complete change really kind of shows you where we are. But the best story about the importance of water is probably the always river valley situation where it tells you how important water is to a community because that really kind of built LA when they still appropriated that water from the valley and it had very dire economic consequences for

the O r Valley, which continue to today the 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 worst 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 important water lessons. And you were the general manager of

background audio 2 (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 of California male 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 3 (00:07:43):

I e both economically and just health wise, all the stakeholders who water, water quality,

background audio 2 (00:07:54):

Definitely that's come up once or twice in the Might have. Yeah, we have grade a milk. So the standard is the water has to be pristine. You cannot have contaminated water and 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, grade a water. Now we have some areas that got contaminated because of the Korean War and World War ii, which is T C E and Chromium. But that is isolated and being treated constantly.

background audio 3 (00:08:41):

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

background audio 1 (00:08:57):

When were you first involved with Water Master?

background audio 2 (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 with 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 the water master so you will not own the water rights. So that was quite a challenge for a loud of 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 ag pool attending the board meetings that we were very much involved for lot of year.

background audio 3 (00:10:10):

Well as I spent my time in court whiskeys for drinking the waters for Biden,

background audio 1 (00:10:15):

Right?

background audio 2 (00:10:16):

Yes. There's a bench down the road as you travel down Archibald and you'll see a monument by a bus seat and it was one of our former chairman, a farmer from this area grew 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

background audio 1 (00:10:42):

And the land

background audio 3 (00:10:44):

Obiwan Kenobi,

background audio 1 (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 it was foreseen in the judgment, but it plays out in everything that come to see today. Brian, introduction

ONAP Representative (00:11:05):

From you. Sure. My name is Brian Geye. 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, I'm trying to think, 15 years or so. And we had another gentleman at the racetrack who sort of, this was his baby for a while and he unfortunately passed away and I jumped in to takeover. You might, I dunno if you remember Les Richter at all, 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 the 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 chair 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 3 (00:12:32):

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

ONAP Representative (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 thankfully 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 capped area. So that's it. Happy to talk about racing all day if we want to.

background audio 1 (00:13:25):

Chris Digs, I work for the city Poon. I'm the director of water resources. I held a number of positions actually in this area. I was also with Montana Union Director of Operations there. I worked for the water company for a dozen years and then I was also in red for about 10 years. Been around working around water master for about 20 years. I've been in the industry over 28. Actually started in the field from piping around fixing and weight, things of that nature. As Brian said, I also was vice chair of advisory vice chair of the appropriate pool and apparently the chair of the appropriate pool allow myself not as long as Mr. Sra, but to me it seems like a long time.

background audio 3 (00:14:15):

And so LA County I assume has some water master for their basin. And why isn't Pomona part of that? Or is it just because of the natural geology? It kind makes it,

background audio 1 (00:14:29):

It's not as, those lines aren't drawn by county lines or city lines, anything of that nature. It's drawn by the boundary of the basin itself.

background audio 3 (00:14:39):

So the geology?

background audio 1 (00:14:40):

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 includes Pomona and then goes north into Claremont and liver, Pomona straddles, geologic falls. So they're partly in one basin, partly in another. It's all geology, no lines on the map. Three groundwater base. Yeah, RA six base.

(00:15:37):

Okay, Andy? Sure. Andy Malone. I'm a principal geologist at West Yost. Formerly it was a company called Wildermuth Environmental. May have 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 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 and Management program. That's one of the first things that I started working on here and been working here ever since. I really grew up in the industry in the space and it's been a long time now on almost three years. So yeah, we work here. We work in the six basins where Chris pumps from as well and a responder basin. So just really familiar with the area and come a second home.

(00:16:57):

So a little bit about main, I have a degree in civil engineering, a 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 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 Santa Fernanda 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 Waterhouse. I've been here.

background audio 3 (00:18:29):

Okay, well I'll just tell you a little bit about myself. This is my 38th year in law. I've been an attorney for 22 years. The rest cotton been on the bench. I started out as the DA in Orange County for a few years after I left that I done 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 but was a defense attorney and as a civil attorney I did both prosecution and worked for small law firms, large law firms, worked for the government, obviously being the DA and had my own office as well. So I did a lot of different stuff as an attorney. I actually had a lawsuit a couple years ago that I tried to, there was a Kaiser case where they had fought over some water rights that weren't clearly identified in the whatever agreement they had to purchase the land.

(00:19:51):

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. He did all his own research and was kind of this tally 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. So whoever was going to take it over we're pretty much going to kind of take over from scratch and didn't really have the benefit of all that research that he's good on you out as a research

background audio 1 (00:20:47):

Attorney

background audio 3 (00:20:49):

For the courts. So I'm sure he was pretty good research and 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. Usually I go to these things kicking and screaming, but I'm really excited to be here

background audio 1 (00:21:11):

Today,

background audio 3 (00:21:11):

Learn a little bit more about what happens here, what you do. It's tremendous resource for the county that it needs to be managed sustainably for the benefit of all the stakeholders. So that's a big lift for all engineer. I really appreciate that you guys do that to accomplish it. And the public member really hears about what happened here and that's a good thing. It means you guys are doing your job. If you guys

screw it up, you try to be the paper a lot more. But I just appreciate all the hard work and effort that you put in. It's got to be pretty rewarding to such a valuable resource.

background audio 1 (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 out as a case. I'll figure that as it comes. I'm learn from scratch. So thank you for that. So this is the laminated map that's available top is 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. 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 the 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 home. So that was a whole other chapter.

(00:23:47):

Prominent features are the Santa Ana River, which begins up at Seven Oaks Dam. We are in the Santa Ana River Watershed where a small portion of it, the Santa Ana river begins to the east of us and flows through Southern Park Basin. It has tributaries that come up from Tesco Canyon it next down at Prado Basin. And from there it goes out to Orange County. 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 in front a basin and out of the base. 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.

(00:24:56):

They catch the river, they neck down the product basin, then flow up 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 is to go from the north to the south. 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 base. 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 that pumped groundwater, and then when it rained, rainfall and the Santa Ana river replenish the basin.

(00:26:03):

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 the subsequent court order

to be the nine member boards 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 basic. But speaking of imported water, there is a facility owned by Metropolitan Water District called the Rialto Feed that runs along the foothills of the mountains and it takes state water project imported from the north and it moves it to the east.

(00:27:14):

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 in the city of Ontario. Sorry, does that me? I have a ring at home. So always. 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 created as wastewater and then treated, it becomes recycled water, which is then reused in the waste. 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.

(00:28:38):

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. 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 wells. So we'll visit all those facilities. Today we are approximately, let's see, here's the airport and is Arch Boat. We're approximately here right now. So our tour, we're going to go up or we're hoping for a little more clear morning, but we're going to go up at one the preserve. Have you ever been there? I have. I picked that. The trail times, it falls. So if we don't get a great view today, next time you hike it, you can look back view of the basin. But the idea is to look from there and kind look and orient you to the Harpa Hills.

(00:29:38):

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 Gallo 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 3 (00:30:18):

So at the top of the Sylvania recharge basin, there's imparted water coming in there. Correct? Through big pipe. Where does that water come from? Is that from Silverwood or

background audio 1 (00:30:29):

Rialto? It would come from Rialto. Rialto, yeah. Okay. But that does, which comes from Silverwood. Which comes from Silverwood. Okay,

background audio 3 (00:30:35):

So it comes down from Silverwood. Yes. Through an underground pipeline. I'm consuming. Right. And then they pump it over to the top of the SAN thing so that it recharges incorporated back down.

background audio 1 (00:30:47):

Yes. We also have access to recycled water there. We also have access to local stormwater, and you'll see where the local stormwater comes in a couple of places. So we are going to visit these facilities here, and then we're going to catch the two 10 and drive to the ACOs water treatment plant. That's the water facilities authority, water treatment plant. And so you'll have an orientation to what the treatment plants 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, which 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 import.

background audio 3 (00:32:10):

How long ago was that?

background audio 1 (00:32:11):

Fifties. Fifties before population one. Very insightful about the farmers. So we'll visit that there and then we'll wind their 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, enclosed 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's 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. That seems a little light to me. Well,

background audio 1 (00:33:23):

Okay, in terms

background audio 3 (00:33:25):

Of, I'm going to argue with generally worked 98 ball in looking forward,

background audio 1 (00:33:38):

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? So

background audio 3 (00:33:52):

Then you had the bottom table with going down, not replenishing, just going down, down.

background audio 1 (00:33:58):

And it took another 20 years from there to get to a stipulation. That became the court order for the base. 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 exometer, which is a state-of-the-art facility for measuring land subsides. 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. So

background audio 3 (00:34:48):

Earth de salt coming from is that from agricultural

background audio 1 (00:34:51):

Use? Salt is in everything. It's in every glass of water that we import from up north. It's in every ubiquitous in the environment. Salt management is the biggest challenge for groundwater base 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 salt and nutrient management plan. In our case, we'll talk a little more about the solution for salt management in the 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 V s, primarily in the agricultural area. That is a major contributor, but it is t v s total dissolved. Solid salt is in everything.

background audio 3 (00:35:50):

And how did they get that out? Like giant membranes or

background audio 1 (00:35:53):

Something? Yes. Well 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 about sludge today. That is the stuff that is sort of the byproduct of all that. We don't really think about it firsthand, but it is a real concern for water management. And then dip into Prada basin. We'll take a look at the, we'll get close to the river, the 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 V A tube and we'll be back here. So you will 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, the basin, and just a brief introduction to the O B M P in the program elements?

(00:36:48):

Sure. 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, but very similar in a lot of ways is what the state's trying to now through outlaw. 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 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 periods. So that's another management strategy to sustainably manage the base. And so we'll be touching on a lot of that as we go through.

background audio 3 (00:37:52):

And are there these salters also doing sewage and chemicals? Is that done separately?

background audio 1 (00:38:00):

The salters? Yeah. What do they remove?

background audio 3 (00:38:04):

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

background audio 1 (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. It's groundwater. So there was

background audio 3 (00:38:28):

Groundwater, correct?

background audio 1 (00:38:29):

Yeah. Yeah, it is groundwater.

background audio 3 (00:38:30):

What if you have a sewage polluted from groundwater because of stepping,

background audio 1 (00:38:35):

But it's not removing a flood or sewage per se. It

background audio 3 (00:38:38):

Might be remnants, so to speak from the contamination, but it's groundwater pumping. But wouldn't that have perchlorate other chemicals?

background audio 1 (00:38:49):

Yes. So there are eight plumes of industrial pollution basin. The largest one is emanating south of the airport. And it's pretty much blowing with groundwater.

background audio 3 (00:39:03):

And with that blew

background audio 1 (00:39:05):

That is like everything else, Hess stray. 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

background audio 3 (00:39:35):

That wasn't caused by the airport?

background audio 1 (00:39:37):

No, no. It was not caused by the airport. Right. It just happened to be caused by the airport? No, it was just south of just location wide 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 the same thing. So we have two C D A plans, 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 CBA one, again, we're taking an enhancement of the treatment processes

background audio 3 (00:40:24):

And what that problem might come. And oil

background audio 1 (00:40:27):

Dumping fuel, dumping oil and firefighting foam, which has a lot of benefits. Mr. SRA said World War ii, Korean War types of practices when everybody

background audio 3 (00:40:41):

Just dump stuff in their

background audio 2 (00:40:43):

Yes, they wash their engines and stuff. For some reason you're on a runs downhill. 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 was a manure, it was a nitrates, it was what came from man-made material.

background audio 3 (00:41:09):

So touch on the old days, we just kind of dumped out. Grant, do you run any education programs down here for

background audio 1 (00:41:17):

Schools? 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. The question about septic, this area here has this portion of the basin is still on septic. The rest has been pretty much sewer. That's

background audio 3 (00:41:46):

Mostly unincorporated

background audio 1 (00:41:47):

Area, unincorporated county. Yeah. It is actually in the city of Fontana for the most part. But outside of that, everything else is sewed. And the collection of wastewater and treatment of wastewater is handled by Inland Empire Utilizations, I u A. They run the regional plants. There's four of them that

collect the water. So what happens to that water is it either gets pumped and used for recycle, 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):

Is that agency trying to get rid of the septic and try to replace it buying?

background audio 1 (00:42:37):

As far as I know, a few years ago they approached the city of font Montana and asked, can we convert the capital expense? Apparently is pretty large. So that's not going any further, 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 then have to pay a service charge. Whereas now they just have a septic tempera. They don't have to worry about it. So it becomes what do those customers want moving hard,

background audio 3 (00:43:11):

What you guys do?

background audio 1 (00:43:13):

Yes, sure. And we just look at one small piece of it. You look at what Chris does and he looks at another piece of it. What I u A does, it's another a piece of it. It's a remarkable assembly of interest and management pieces to actually get water to people you that pipe all of that pipe they would've to construct in their a thumbnail number. It's a million dollars a mile pipe, a lot of costs, a lot of structure.

background audio 3 (00:43:48):

Well, the great cities of antiquity were not built by wars. They were built by government, can figure out a way to get fresh water to their people for help and economic growth.

background audio 2 (00:44:02):

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

background audio 1 (00:44:30):

Us. So anything else, Andy, for orientation? Well, 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 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 will go past the root zone in a more highly concentrated form because the plants have used up that water that'll 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, it keeps building and we've lowered groundwater levels in this space.

(00:45:36):

And so we don't have as much groundwater outflow as sand 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 and including the nutrient loads. And so that's just an inherent process that every groundwater basin has to deal with. And this space 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 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.

(00:46:35):

The salters are something that of course have to be approved by the regulator for original water quality control. 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 walls into a treatment plans that are here and remove salt. And it keeps 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 of stream. Otherwise that 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 ground water flow and extract from salt is something that it's only happened in this regional board in this space in California. Really? Yeah.

(00:47:43):

So you'll see that today. And it's something that, I mean, 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, the salting, 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, brine line,

background audio 3 (00:48:32):

Make lithium batteries out of it.

background audio 1 (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 base and then preserve the resource Other places. You have food industry, you have women 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 e 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's that concentrated brine going? Because that's what prevents people from putting desalinization plant all along the toast. They don't know what to do without

background audio 1 (00:49:22):

It. It goes down to the coast and Orange County takes the brine and takes the brine out of the super concentrator brine ward. The brine eventually makes it back to the ocean where it started, millennium

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

background audio 2 (00:49:48):

And the technologies even for agriculture, your Honor, it's just amazing. I've watched three generations, 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 agriculture.

background audio 1 (00:50:16):

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

background audio 3 (00:50:22):

I nitrate

background audio 1 (00:50:27):

A euphemism. Chris, are you going that way as well? Can I ask you to use, well you have it down the hall to your right. There's two. What's that? There's two now. There's two now. Allegedly you take any, let's see. Make sure that everybody knows. Don't fiddle. Make sure everybody, you're the only one that messed up. My nurse is not here today. You're flashing to hear the alarm that off my wife's birthday's coming up and I have an Allah every Monday, Wednesday, and Friday to remind you of all the planning that they give purchase and everything else I need to do. So that's why we seven here. Interesting. Bakersfield or of course that's why they're all there. Now there's any question who I am. Just be sure to look at my hat.

background audio 5 (00:53:45):

What's off?

background audio 6 (00:53:46):

Figure some of those of us who are a little bit more nimble will let fester not work his way to the back.

background audio 5 (00:54:08):

I was going to say coffee table style.

background audio 4 (00:54:21):

It has,

background audio 5 (00:54:26):

I dunno what's in the box? What's in the box? Remember random goodies. Are we seating properly or we must be. Yeah, we got two feet. Oh, where's the, I think in the front,

background audio 4 (00:54:59):

Yeah,

background audio 5 (00:55:06):

Microphone.

background audio 4 (00:55:10):

But

background audio 5 (00:55:10):

Maybe a little education county supervisor called me. So do we have everyone? And we have more room. We have room, we have drinks there for anybody that needs

background audio 4 (00:55:53):

Or familiar with.

background audio 5 (00:55:55):

We

background audio 4 (00:55:55):

Are right

background audio 5 (00:55:56):

Now developing

background audio 4 (00:55:57):

A salt and nutrient management plan for the Coachella Valley, which is a really interesting situation. The regional board there is very concerning about recharge Colorado, which has a higher salt concentration than the state water project. The t d s concentration, the concentration, secondary M C L for the state of, so Colorado River, really important resource for the Coachella Valley because it sustains their groundwater there and they're highly dependent on groundwater. So it's an interesting problem. But yeah, so that's storage, natural storage water. Okay, thank you. Back holiday. That area is changing quite a bit also because of the sustainable ground management. They're going to be back pump farming. So as we're making our way towards, but they're there. We have Describe how the ag does that affect. So are is the concept off the side, the storm off now

background audio 7 (01:04:40):

In the early two thousands? Really big. Yeah. Big store

background audio 4 (01:05:18):

And that out how those operation of the basis that the areas there are very

background audio 8 (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 is moving to the north has been thrust underneath the mountains here. And this is the cuon default zone that we're generally sitting on. But so this crestal block being depressed and thrust underneath this mountain range, which is being

thrust upward. And so weathering and erosion up here sheds the sediments during floods out here to be deposited on this subsiding basin here. And so the sediments build up, the water percolate in, and this becomes a groundwater reservoir, which made a great, great growing region. Use the soil kind of soil. Yeah, very sandy soil. We got very core spring 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.

(01:13:07):

These basins over here are referred to them as the San Bernardino groundwater basins. And so Alto port and 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 Basin. So that's what the fault like too, they provide that barrier and that's why yeah, mapped out that way. Right. The fault movement grinds up the sediments 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.

(01:14:11):

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 have. So this is a giant basin, just like one of the largest in the state, 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 know. It's nice, it's very central. And we've got all these imported water pipelines coming here, so it could really function as hub for regional water project. So where does the water,

background audio 4 (01:15:21):

Surface Water mountain.

background audio 8 (01:15:25):

There's also a groundwater basin right here called the Cucamonga Basin this fall here that runs out in front of us.

background audio 4 (01:15:33):

We're actually up here in the Cucamonga basin. Looking out here. This MGA basin will pump out. And then again, a good barrier to groundwater flow here. So water can still turn the Novation surface water about half the entire region relies on basin.