Transcript of *Regional Water Availability and Superfund: Generating a Valuable Resource at Phoenix-Goodyear Airport Area*

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Please stand by for realtime captions. >> ONLY ONLINE AUDIO PARTICIPANTS WILL HEAR HOLD MUSIC. I WILL DOUBLE CHECK TO MAKE SURE THAT PEOPLE WHO ARE LISTENING ONLINE ARE ABLE TO HEAR MY VOICE OKAY. IF YOU HAPPEN TO HAVE JOINED AS EARLY FOR TODAY'S UPCOMING INTERNET SEMINAR, PLEASE FEEL FREE TO USE THE QUESTION WINDOW THAT APPEARS IN THE LOWER RIGHT CORNER OF YOUR SCREEN AND LET ME KNOW IF YOU ARE ABLE TO HEAR MY VOICE COMING THROUGH LOUD AND CLEAR IN THE INTERACTIVE ADOBE CONNECT ENVIRONMENT. YOU ARE JOINING US FOR THE REGIONAL WATER AVAILABILITY AND SUPERFUND THAT IS GOING TO BEGIN IN APPROXIMATELY 9 MINUTES AT 2:00 PM EASTERN. FOR THOSE INDIVIDUALS WHO ARE ABLE TO SEND IN A QUICK MESSAGE AND CONFIRM THEY ARE ABLE TO HEAR MY VOICE, MANY THANKS. WE APPRECIATE THE REAL TIME INDICATORS. MY NAME IS JEAN BALENT AND I WILL BE A SESSION MODERATOR. WE HAVE EIGHT MINUTES INTO LEGALIZE AND WHILE WAITING FOR PARTICIPANTS TO JOIN US I WILL BE REPEATING A FEW BRIEF REMINDER ITEMS WHILE WAITING TO GET STARTED AT 2:00 PM. FOR THOSE WHO ARE BRAND-NEW TO OUR INTERNET SEMINARS WELCOME. WE ARE GLAD TO HAVE NEW PARTICIPANTS JOIN US FOR THE EVENT. YOU SHOULD HAVE RECEIVED A REGISTRATION REMINDER AS WELL AS CONFIRMATION EMAIL WITH ALL THE INSTRUCTIONS THAT YOU WILL NEED TO JOIN US FOR THE LIVE BROADCAST FOR THE EMAIL WILL POINT YOU TO SOMETHING KNOWN AS THE SEMINAR HOME PAGE WHERE YOU CAN READ MORE ABOUT THE BROADCAST FIND A SESSION DESCRIPTION AND INFORMATION FROM THE PRESENTERS. THERE ARE LINKS TO DOWNLOAD THE PRESENTATION MATERIAL AS WELL AS A VARIETY OF RESOURCES THAT WILL BE DISCUSSED ON TODAY'S SESSION. TO JOIN US FOR THE LIVE BROADCAST YOU WILL NEED TO CLICK A BUTTON THAT APPEARS ON THE UPPER LEFT CORNER OF THE PAGE LABELED GO TO SEMINAR. WENT TO CLICK THAT BUTTON YOU WILL BE ASKED IDENTIFY YOURSELF BY NAME AS WELL AS THE NUMBER OF PEOPLE IN YOUR LOCATION. JUST A QUICK TIP, IF YOU HAPPEN TO HAVE A NAME LIKE WILLIAM

THAT MAY HAVE NICKNAMES THAT YOU GO BY, IF YOU REGISTERED UNDER THE NAME BILL, YOU NEED TO CHECK IN ON TO THE FIRST NAME OF ALE. HE PUT IN WILLIAM OUR SYSTEM WILL RECOGNIZE YOU. IF YOU HAVE ANY PROBLEMS CHECKING IN ONLINE OR HAVE LIMITED INTERNET ACCESS YOU CAN DOWNLOAD OR PRINT A COPY OF THE MATERIAL AND JOIN US BY PHONE. WHO COURAGE YOU TO LET US KNOW IF YOU'RE HAVING ISSUES AND WE CAN WORK WITH YOU AND TROUBLESHOOT PROBLEMS AND GET YOU ON BOARD. >> The number continues to grow as we get closer to our kickoff time. Once you've checked in for today's interactive seminar you should come into a live broadcast room and to reconnect and has a series of boxes up on the screen in front of you. Along the left-hand side you will see a large window showing PowerPoint slides and welcoming you to the session. That's the area will be visually sharing contact with you you can sit back and watch as our presenters click through the material.

The are the kind of person that likes to page back and forth at your own pace we do have copies of the material available to download from the seminar link. You can visit that on the seminar homepage or follow the link. You will find copies of the slides where you can download them and print them out. Along the right-hand side you will

see three foxes stacked on top of each other in the upper right you will find information about our sponsors and presenters today for on the middle right of the screen we have a collection of related URLs and these are active hyperlinks. These URLs can be opened up like clicking on them and picking the browser to buy and that is below the that should open up the actual URL on your own computer. If you have any problems opening this up, make sure your carefully checking on your computers. Sometimes they open in different tabs for depends on your browser. Then below that window we do have our question window in the lower right corner that is the primary way we will be collecting questions and comments from today's life audience. I encourage you to take a moment and test that feature out. If you have not used it before. If you would like to share a test question or comment or simply let us know how the audio and visuals are coming through for your location, simply use the empty box that appears all the way at the bottom of the question window in the lower right-hand corner of your screen. You should build a click here cursor there. Say hi, send a test message, let me know where your joining us from or if you can hear and see things once you're done with the message either hit the enter key on your keyboard or press the small cartoon double bind to the right. Your message will privately submit your message. Everything you send it to the Q&A our question box is private for it is only visible to the presenters and moderators. I courage you to use that window and to share your question and comments as well as your technical problems at any time. Will have designated breaks for Q&A at that time will reach it was Al-Azhar presenters had answered them. You don't have to wait for Q&A. You can share your question and comments at any time. Audit will be available to ways, 2 ways for you here upcoming regional water availability and Superfund webinar online using a pair of speakers or a pair of headphones. If having any problems with the online audio level, check your local volume settings. Sometimes you might need to get into the sound control settings panel on your computer to boost the audio. They will find using a pair of headphones helps. If you happen to be problems with the online audio let me know using the question box in the lower right corner. I will be more than happy to share one of the limited toll-free call in life we can join us by phone and if you would like to do that just let us know in the questions box right now we can get you the call in detail. If you join us by phone know you would place on a global mute and we ask that you remain on the global youth to cut down on background noise. We are getting closer to our scheduled kickoff time at 2:00 PM Eastern . In just a few moments will walk for a complete set up -- set of instructions for calm on board in the middle of this, I will keep repeating it. We'll go through all of the details one more time before we kick off the technical details of our session. At 2:00 PM. 70 individuals have checked in the number keeps going up. I will continue to welcome those of you hopping online. My name is Jean balance -- treasury to pay will turn it over to Michele Mahoney in a few moments. I would like to continue to welcome those of you who are signing on board. Remind you to take a look at your registration reminder and conference -- operation in a. It has all ejections you need to join us for today's broadcast. If you're looking for call in details are you don't know what URL to use, look at those details. The etiology tells . You'll be directed to go to something as the seminar homepage for you can read more about today's session , find seminar resources we

could download copies of the slides in a variety of other documents. You will also have access to a feedback form that you can complete after today's broadcast. There is a ton of information method for now to join us for the live broadcast click the button that appears in the upper left corner of the page. Once you click the buy and you will be asked identify yourself by name as well as a number of people your location. You should be able to successfully check yourself in online and join us for that live broadcast. Many thanks to those participants who are typing a message is confirming they have the audio levels stabilized. We appreciate the confirmation that things are working. We're going to kick off today's upcoming regional water availability and Superfund webinar here in a few moments. We do have additional participants who continue to join us online and I will continue to say hello to those of you who are checking in. We have nearly 90 people who have checked in online and there are more of you walking in the door as I speak. It does look like we have gone to our kickoff time of July p.m. Eastern. I like to check in with my co-moderator Michelle Mahoney and one of our presenters Shepherd are you both prepared to begin?

We are. >> Okay. With that, let me turn on the recording for today's session and officially welcome everyone to today's Internet seminar on Regional Water Availability and Superfund. Generating a viable resource at the Phoenix could your effort error. Sponsored by the EPS office of land in emergency management in the office of Superfund remediation and initiative. As noted my name is Jean Balent. I will be three things over to Michele Mahoney from U.S. EPA Technology Innovation and Field Services Division as well as Melissa Friedland from U.S. EPA Superfund Redevelopment Initiative. Before we begin the technical portion for today's broadcast of a walk-through a few housekeeping items. When you registered for today's session he should have been sent confirmation email as well as a reminder email with all of the details and instructions you need to join us . The emails opened to do something known as the seminar homepage which will be active from this point forward on it homepage you can read about today's session, download. There is contact information and bias for instructors, related archived webinars and even a chance to provide feedback. To join us for the live broadcast you need to click a button on the page labeled go to seminary. Once you click the button you will Sibley need to enter your name as well as a number of people at your location to join. That should bring us on board to our connect that will use for desert and Debbie connect will let you sit back and watch real-time as our presenters do the material. And follow along from your location wherever that may be. You have technical problems or limited Internet access you can Sibley download a copy of the slides and follow along by phone. We encourage you to let us know if those issues -- of those issues. By default audio is available online for all participants. You should build hear me coming right for your computer speakers or with a pair of headphones. Make sure the audio in -- is enabled by looking for a bright green icon in the upper portion of your screen. If having problems with the online audio check your volume settings for something to have to go into the sound control panel and adjust speaker output. Some people find using headphones can really help. If that doesn't solve the problem we do have telephone : information and if you like to join us by phone type in a message in the questions went on the lower

right-hand corner of history and I will be happy to share the call in details. If you join us by phone, please note you would place on a global mute and we ask you to remain globally muted to cut down on background audio. As I mentioned there is a question box that appears in the lower right-hand corner. You should see a welcome message from me appearing in that window. You can use that window to privately submit comments, questions and technical problems in any type of creature test that we do have right now. Click on the empty box all the way on the bottom right corner and send in a test message. Want done hit the enter key or press the small cartoon button. Either way was a bit. That is the primary way that will accept questions and comments. Test it out and measure your car from within. We will have designated breaks for Q&A with our instructors, there is no need to wait for the breaks that you get to meet your questions comments anytime. I've noted today's session is being recorded and you will automatically receive a confirmation email in approximately 1 to 2 weeks as soon as the archived is available. If you would like to browse the over 620 previously recorded orbiters Beverly available on slide to where you can access and share the resources. As noted on the seminar homepage you can join us by clicking on the go to seminar but here, links to the resources will also appear there and you can download copies of the slides and other documents. You should see a screen like this left side PowerPoint slides will appear in a large window figure is about that appears in the upper right-hand corner looks like for arrows pointing opposite directions for that will make the slide bigger. It having any problems viewing content you can feel free to click that arrow button at any time cooking and once will expand the site and kicking clicking it again looks straight into the right-hand side of the information at the sponsors and presenters in the upper right there is a collect your out -- URLs. Our Q&A window down here. You can type in your question, comments with the technical problems privately.

I think that's the end of the technical reminders I had for today's session. I will turn things over to my co-moderators Michele Mahoney and one of our first presentersMelissa Friedland.

Thank you for the introduction to our webinar. As Eugene mentioned we have a lot of great presenters that we'll talk about regional water availability and Superfund. Particularly at the Phoenix could your airport area sites. I will turn things over to Melissa Friedland who is the Superfund redevelopment initiative integer and she will give us an introduction to the webinar and move on to introducing the other speakers.

Thanks, Michelle. That afternoon a happy new year. They give for joining us.

I am very excited because this is our first webinar 2016 and I am very glad you could be here. The Superfund redevelopment initiative or RI poses these webinars as part of a quarterly webinar series about the reuse of Superfund sites. These SRI webinars share success stories and challenges in the hope that the stories will inspire you to consider reuse other properties for webinars provide guidance, tools and lessons learned to support the appropriate reuse of Superfund sites. Today's webinar is unique. We will focus on one site-specific case study as you may know water availability and water conservation have become important

topics especially in the Western United States and it's been impacted by extreme droughts in recent years. Coronation between site and stakeholders has allowed for cleanup design that's enabled continued operation of business is on-site. And resulted in the beneficial reuse of billions of gallons of treated groundwater. I will start us off today with a very brief introduction to reuse and EPA Superfund redevelopment initiative to help you will see that SRI plays a key role in supporting reuse as a priority. Then we'll hear from Jared Vollmer from EPA Region 9 Urban Waters and watershed offices about the importance of restoring reusing and recycling groundwater . After that will jump into our in-depth look at the Phoenix could your airport area Superfund site. First will hear from Catherine Bown, from EPA Region 9 pedaled it was an introduction and Mark Holmes from City of Goodyear Arizona will share about the partnerships between the sites, stakeholders and Stephanie destiny -- Stephanie Koehne of AMEC Foster Wheeler how Superfund cleanup treats water. And to wrap up I will provide you with a few additional resources and points of contact that we may have time to take the additional questions. The start of all -- start us off today I will share reuse in the way SRI can support reuse. EPA's primary mission is to protect human health and the environment and returning contaminated sites to productive use can contribute to these goals. SRI works with communities and other partners and considering future use opportunities and integrating appropriate reuse options into the cleanup process . EPA is always -- in recent years reuse has become a priority and interval part of the agency strategic plans and goals. What I really want to emphasize is that reuse consideration can and should be explored at any point during the Superfund cleanup process. There are many different ways to reuse Superfund sites and no one size fits all solution to determine which a reuse type will be most appropriate for how to make sure that the site is best reuse. Also point out that many site can do multiple reuse. An -- [Indiscernible]. It's home to two thriving business parks which provide commercial space and office space for wide home of businesses as well as 25 acre open space preserve which provides walking trails inhabited for local wildlife. This is one of many examples of site reuse and I would like to encourage you to visit the SRI website to find more in-depth information under the reuse success story section. If you have any questions about reuse or SRI, don't hesitate to contact me. I would like to have things over to our first presenter Jared Vollmer from EPA Region 9 Urban Waters will get us started on today's topics by putting the importance of cleaning up and restoring contaminated groundwater. Before I go I would like to say please feel free to ask questions of our presenter will try to answer questions after each section we may hold some questions until the end if we think future presenters will address them. We also have time at the end of presentations for remaking questions. >> Thank you, Melissa. My name is Jared Vollmer and I am with EPA region I out of San Francisco. I've been working with Arizona for about nine years. I am a nonpoint source group which is clean water act funded program and we are technically called the watershed group rate we do a lot of watershed group work with folks pollution, mining issues and issues in all across the state of Arizona. We also manage the urban Waters program at a free tonight. A national program and I will take a bit of a tangent of talking about the groundwater, we don't work with groundwater. I will go off with urban

Waters and briefly talk about the watershed approach in Arizona. Urban Waters program overarching goal is to reconnect communities to the surface water. This is about being acting as one federal agency with other agencies. As well as providing a small amount of funds for on the ground projects. If you'd like to learn more our website URL is posted right there. I am going to talk real quick about the two pieces , two main pieces of our urban Waters program. We have 19 locations across the country and region nine, the LA region watershed, we found that the only River watershed really needed better coronation amongst federal agencies. Army Corps of Engineers planned in the stalled in the community really

needed to revitalize the LA River. If you don't know about the LA River basically what you see in the Terminator movie or grease where the concrete flood channel. Folks haven't been able to use it for years. They could go down, it was illegal to go down in there. What we've been able to do is encourage the core to adopt a plan that will help revitalize and reopen parts of the river to the community. And for the first time the Corps of Engineers allowed kayakers to be in the river over the summer which is a pretty big deal for folks in that area. We could do more locations and I think this is maybe where the Arizona peace would come in. We could do more locations if we had additional federal partners to help. We are looking for forest service, Bureau of rec any other agency that would lead a federal charge in Arizona. The other piece that we have that we started a few years ago was a small grants program. This was to emphasize work in disadvantaged communities across the nation. Every other year we would have now set their was funding available and we just finished accepting proposals this year you may have to wait a couple years for another round to come in order for you to apply.

We typically found projects that allow for a group to go in and educate the community and allow them to be reconnected through education and outreach. You can do industry monitoring -- in stream . Bring everyone into the fold of the river instead of turning your backs on the river. These are the areas that were eligible. I haven't seen all the proposals yet the you can see we have some large areas in Arizona, flag, brisket, Tucson and the Phoenix area. Even in Sierra Vista. It's a pretty good size for the urban areas in Arizona. Hopefully we'll see. The other piece that a portion of my job deals with a non-urban approach where we work with partners across the state and this is a picture of the watersheds in Arizona. These are eight digit hocks . We ended up doing as we targeted these areas for a non-urban approach. There is a little bit of a Superfund angle where Superfund can't pay for things. We have been able to go in and work with the community and the watersheds to clean up abandoned mines cost and issues . We do a lot of outreach work as well. The non-urban areas. The other piece of Arizona is that 72% of its federal land, we have to pull on our urban water tool of working across federal agencies. A lot of for service plan, a lot of BLM, there is also a lot of Arizona State land that we end up correlating a lot with the state land folks as well. So that was my quick little spiel . I'll hand it back over to the group. If you have any questions feel free to give me a buzz. I am always available to take your call. Thank you. >> Why do we move on to Catherine Brown. >> Thanks, Melissa. Good morning. Or afternoon depending what time zone you are in. Thanks for joining us to discuss beneficial reuse of treaty

groundwater [Indiscernible - low volume] at Goodyear airport Superfund site. My name is Catherine Brown I'm in the Superfund region for regional. LB providing an overview and history of the Superfund site. Perhaps the moderator, I don't seem to be able to advance the slide.

If you can move the green arrow >> It's not -- area. -- There we go. Phoenix Goodyear airport Superfund is located in Goodyear Arizona which is 70 miles roughly west of Phoenix. Even see in the graph the relative location within the state where the site is. This is in the West salt River Valley in Arizona the regional [Indiscernible - low volume] areas characterized as Sonoran desert

with subtropical desert climate and it typically experiences only 7 to 10 inches of rainfall annually. Summer air temperatures average 105 Fahrenheit but they can reach extremes of greater than 120 Fahrenheit. Humidity is very low and the winters are mild. With us being warm and at times hot and always try means water resources are paramount importance of people in the area. Historically land use in the area hasn't been -- has been open desert in agriculture, in recent years the city has experienced significant growth. In 1980 population was less than 3000 people. By 2014 the city had grown to greater than 73,000 people and is expected to exceed 100,000 and is expected to exceed 100,000 x 20 20. Identifying a guaranteed water supply to sustain growth is it legal obligation. The principal source of drinking water currently is groundwater. There seems to be a delay. Thanks for the help. In 1981 the Arizona Department of Health Services found that groundwater in the area of the Ridgefield airport which later became known as the Phoenix Goodyear airport was polluted with volatile compounds. In September 1983 date added the Phoenix Goodyear airport site to the national priorities list. Superfund investigation subsequently determined that there were two principal sources of contamination which are now known as Phoenix Goodyear airport north area and Phoenix Goodyear South area. Contamination FPGA North is a treated to practices that [Indiscernible - low volume] known as UPI. In 1963 to 1993 UPI was under contract directly or indirectly to the federal government production testing and development of components for tactical and strategic weapons in different systems. PGA style source was determined to be from surface discharge of material used in the maintenance and repair of aircraft first at the Litchfield Naval facility known as PGA and then at the Goodyear Aerospace company from 1990 that from 1948 probably 1987. -- Approximately 1987. In the process of the Superfund as it unfolded in 1989 we made the determination of so-called record of decision for the sites and it's with that selection of top entry is a groundwater remedy above PGA North and South was made. In that brought the water in use alternatives were included to provide an implementable effective economical and safe means of disposal for the extracted groundwater. Specifically called out as options for the following. Agricultural -- I think we should be back slide. Thanks for the help. Agricultural or irrigation for crop production was allowed, industrial uses, municipal uses such a striking water supply and certain types of water rights. Recreational uses were allowed such as creating lakes or irrigating public parks or golf courses. Injection for aquifer restoration was included. As well as surface discharge that being to the Agua Fria or EULA River. As well as diversion downstream for municipal uses. The

remedy -- as the remedy was constructed groundwater was injected back into the Aqua freedom for Flint continued. The shallow flumes have been contained for many years. And in the case of PGA North where much more water is extracted as part of the remedy the shallow Aqua Fria is mostly contained. With the use of extracted groundwater now being available for other beneficial uses let's talk about some specifics about our beneficial reuse. For PGA South , the treaty groundwater is able to be used and distributed to the groundwater recreation complex and in that case in 2015 we were able to redistribute 81.5 million gallons with an average savings -- annual savings to the city of Goodyear $200,000. In the case of PGA North where much more water is extracted and some from wells with rights to water supplies for irrigation and in addition to the rejecting that we do we have the following application there is city of Goodyear community Park lawn and landscaping irrigation for 21 million used in 2013 for savings of $75,000 per the St. Thomas Aquinas gradeschool heat exchanger for air-conditioners to provide air-conditioning is 170 -- hundred 97 million -- hundred 97,000,000 gallons to the heat exchanger and then it's reinjected into the Aqua Fria for a double benefit. The Palm Valley golf course 140,000,000 gallons were used in 2013 for savings of $250,000 to the city. On sites there are agricultural plots irrigated with 52,000,000 gallons used in 2013 for savings between $94,000 in $250,000. And finally the ongoing injection flow control 907,000,000 gallons in 2014. -- 967 million. I have some photos of the various projects. Here is the baseball field complex which receives treated water from PGA South. And then one of the treatment -- larger treatment systems is used to irrigate the Goodyear community Park. This shows the heat exchanger periodically receiving treaty groundwater for nearby elementary school. And then finally the Palm Valley golf course with a treated water is used, it flows into a lake constructed like on-site and then the water was taken from the for irrigating at the golf course.

On-site irrigated plots -- irrigation plots and that shows a brief picture of activity. Is Gila . He will talk in more detail about the benefits to the city of Goodyear.

We have a question for you. Someone is asking was there a concern about using treated water for agricultural irrigation ? And did you need to get an approved -- approved risk assessor and you have public meetings? Was very concerned using it for agricultural irrigation? >> Now. The agricultural use is on-site. As private property. And with the [Indiscernible] allowing for agricultural crop production didn't have any issue with that.

Another question. For which parts of this did you take public input? >> For the writing of the rod?

Yes. Yes. Standard Superfund public meetings and comments were taken on the proposed plan and the rod. >> Lets you one more and will move on. Will try to get the other questions at the end. Someone has asked our PFCs present in the contaminant?

I'm not certain I understand what the PFCs --

Let's move onto another one. I don't go ahead of this point we still have a few more questions let's move on to our next speaker Mark Holmes and it will come back. Happen, don't go away. Thank you. Let's turn it over to Mark Holmes. Thank you very much. I am Mark Holmes water resource manager for

the City of Goodyear Arizona. I've been with the city for more than three years. I am very pleased to say that one of the primary reasons I came to work for the city of Goodyear was due to its focus on innovation and his collaboration. Saturday I really want to focus on that aspect and talk about partnering components for success and what those key elements were for these various activities and projects. To the city of Goodyear police and encourages collaboration and partnership opportunities. The city Council has taken that once a further they are developed the city strategic action plan which underscores the activities. The strategic action plan is linked with the city's every city department strategic action plan for every department really has its initiative to look for innovation and partnership and collaboration opportunities. The city of Goodyear really has gone beyond being a civil stakeholder and Superfund activity . To try and assist with development of collaborative opportunities that could benefit all parties. Partnership has many stakeholders. That went beyond the United stated by mental protection agency. The pencil responding parties. Those included Arizona Department of water resources and included the Arizona Department of environmental quality, and in some instances relating to the airport to the city of Phoenix. The partnership with the Arizona Department of water resources allow the city to beneficially used remediated groundwater without having to replenish that groundwater supply through very specific exemptions and provisions

which required the department directors approve of. And as everyone knows that in the Phoenix active management area where Goodyear is located, or every gallon of Revlon's punt, a gallon was the replenish back into the aquifer heard the state law as part of the groundwater management act of 1980.

The work with Arizona Department of environment and quality allowed for specific discharge permits and conveyance plans for access the meeting groundwater into instances where the city was unable to take the entire volume. As we were able to get immediate groundwater with the access we needed. The city and principal responsible parties also developed long-term citywide access and water delivery agreements. Which provided the principal responsible parties with virtually unlimited access to the city properties or easements and right of ways. The first example is the city -- we developed and executed an access agreement that made all city land accessible for remediation activities. The universal access agreement increased efficiency and that an access agreement it would not be needed for every site and decrease the need for obtaining leases with private property owners. This also decreased permit timings by damage rating latest disability. The agreement also [Indiscernible] [Indiscernible - low volume] the parties can clearly understand the guidelines and standards and safety protocol

to residents. [Indiscernible - static]. Any project that provides the cities of Freewater would have all city permits fees waived. They

agreed to deliver 100,000 gallons per day of remediated groundwater to the city or up to children thousand gallons or day

of remediated groundwater during peak water usage months to the city's largest community Park free of charge. As you saw was the image that Catherine Brown had provided. This is a water commodity savings as Imagine a 75,000 per year to the city's general fund. Also because the water

is exempt from requirements of being replenished, or is an additional savings of $25,000 per year. Also they trained city staff folks in operating the water system for the water timing needs an assistant has been working successfully for over two years. The city and Goodyear tire thumping which is the principle party for the fitting scooter airports sell -- again this night all city land in easements and right ways accessible for remediation activities. Peter Russell access decrease efficiency in the access agreement were not being for every site and it decrease in dynamic of attaining leases for private property. This also decreased permit times demonstrating latest disability and the agreement also ensured construction standardization . There for the parties understand guidelines and standards of safety protocol to our residents. Also for all activities that provide the city Freewater all the city permits were waived and sometimes it can be very substantial depending on the size of the project. Goodyear tire company agreed to deliver a dissenter 20,000 gallons per day every meeting groundwater to the cactus league spring training. They provided the water free of charge. The facility is hundred and 5 acre water intensive turf facility was 17 baseball fields. There is a current water commodity savings delivering water about 250,000 delivering water about $250,000 per year for the city's general fund. Also because the water

is exempt from the requirements of being replenished. Additional savings of $50,000 per year. There's also a inaccurate it was delivering reclaimed water to the facility and it cannot recharge the reclaimed water back into the groundwater better managing aquifer and banking this credits for future use. That's providing water resource financial gain to the city for $63,000 per year. Currently the facility is using approximately 30% of the total water supply in the city will be putting together 70% of the water for other beneficial uses in the city. . Some images for the committee Park encompasses more than 20 acres and consist of very large water temperature areas and other [Indiscernible] you can see in the photograph above. Groundwater has been supplied to the park for more than two years in the park is located within a private water companies service area. Is it is essential [Indiscernible - static]. Here is an image of the ballpark facilities hundred 5 acres it comprises 16 practice field and one Stadium that can see 10,000 fans. Remediated water is set in the reservoir on the upper left image in the water an. Remediated groundwater has been supplied to the facility for just over a year now and the turf managers as a healthier turf using this water supply versus the reclaimed water that has higher solids. Just to recap it's also the benefits remediated water going to the committee Park Cinema city of roughly $75,000 per year and water commodity charges. Remediated water provides the ballpark facility saving the city to a $2000 per year. Combined replenishment exemption say the city are both projects approximately $75,000 per year. Additional reclaimed water is generating new water resource savings in creating water a $63,000 per year. In total these projects are saving

the city nearly $500,000 per year for the general fund. With that I will turn this over to Stephanie Koehne Before we do that, Mark thank you very much for I have a question. How did PGA South convey the treated water to the city and was additional infrastructure and piping needed. That's a great question.

The answer is yes. In the partnership the Goodyear Tire & Rubber agreed to build the infrastructure from their north-central treatment system and convey that remediated groundwater little over a mile along the west side of the Phoenix Goodyear airport down to the interconnect with the city's infrastructure, the city then built in for structure from the ballpark facility reservoir that we interconnected location known as the irrigation channel which is an irrigation channel between two irrigation districts. It's also a wash we have rain events. There was expansion, infrastructure and a switching mechanism the filth Lake reservoir when needed. Obviously with more water. There was infrastructure. Believe the title that was spent by Goodyear tire and rubber was more than 1.3 million. Because we have a shorter run to interconnection point, the city invested that approximately $350,000. You can see a fairly quick return on investment.

That's great. That is a very good segue into a question that someone asked how this movement and not necessarily for you but all of you. How would you recommend beneficial reuse of treated groundwater to cleanup sites if the rod didn't explicitly state that have beneficial reuse is any. Catherine, you want to take a cut at that? I would just say I know a lot of times we write the rod and we get into the design we fill in a lot of detail. There does seem to be what we are hearing from our panelists afar is that this was a tremendous cost savings among other things. I think it has part of the answer if you would factor in that you would do this groundwater cleanup you would save a lot of money. Catherine, I don't know if you want to add anything.

I would say in our case with the foresight to include these possible water and uses his pivotal for our ability to do all of these projects and to make use of the water. I am not an attorney but I would imagine that having that incorporated in our rod was the foresight -- it has allowed us to take these actions.

I guess I want to backtrack. We had a question on Private First Class we're talking about for fluorinated compounds. I guess Catherine, question was, were there PFC's in the water?

These are -- and emerging set of pollutants that EPA adjusted us desert is looking for. We have just begun looking for them through the drinking water for safe drinking water program. So far there's only been to Wells that had showed detection. Those are not Wells that we are using the water for any of the beneficial reuse. >> I have one more question and then we don't want to forget Stephanie someone has asked that a citizen advisory board. You have one at the site?

We do have a citizens advisory group at the site. An active one for the past 10+ years.

I guess before I let you go somebody has is asked a question about a member did you find [Indiscernible] of the psychiatric

We did not. We tested for that in early 2000.

Let's turn it over to Stephanie. Last but not least.

Thank you very much. My name is Stephanie Koehne and I work for AMEC Foster Wheeler . I have a project manager
for the Goodyear airport North Superfund sites. I represent Crane Co., the primary responsible and I thank you for including me. The first thing that actually both market Untouched on his cooperation with agencies and stakeholders. This has been key to the success of all the projects that we have implemented over the last five years. It's an item that we are able to discuss openly. We will get ideas from outside businesses that will be coming in and they take that to Mark and we sit down and have a discussion regarding it and we are able to include the EPA and really determine if it's a feasible option for us

Mark mentioned that in 2012 the city of Goodyear and crinkle entered into a global access agreement and that really does allow us to get treatment systems in and a -- in a faster paced way. And really allows us to explore different ways to beneficially reuse the water within city boundaries. We have five groundwater treatment associate with the PGA North Superfund site. As I take you through these notes that as opportunities have presented themselves we have been able to work through different ways to beneficially reuse water so not all of the system started at the sway and we anticipate over the years that will have more opportunities to continue this. Big picture all five of these grand water treatment systems treat approximately 25,000,000 gallons of water a week and that equates to 1.3 billion gallons of water a year. We do have to be very creative on different ways to use the water. The first groundwater treatment system that we will look at is the main treatment system. The main treatment system was actually first constructed in 1994 and a hedge of a capacity of hundred 50 gallons per minutes and to cleanup the DOCs we utilize air stripping techniques. And then over the years we expanded the groundwater treatment system, this last year we did a pretty large expansion so we can really look into the future and really find ways to optimize treatment and how the water would be distributed to these various areas. Selena treat approximately 1600 gallons per minutes for VOC and this is actually the only treatment system that we do for fluoride treatment and now we have 1300 gallons per minutes treatment capacity at the main treatment system. The make treatment system currently has nine extraction Wells feeding into its and total were pumping about 850 gallons per minutes. The water is then taken into the main treatment system in an era goes through
the air stripping technique our logo through the LGAC treatment technology. And then water has chlorine in its has been used or has been treated using the ionic exchange technology. If you look down to the last, this is actually a view of the NTF and we are looking at the affluent distribution system. You will see that it is located under the blue sales and in the background you can see phase 1 and phase 2 the packed air stripping towers and there is also an irrigation system and

we have the LGAC also back there. In 2009 all the buildings were actually demolished at the sites I felt we're left with a very open area and working with coronation with the EPA and also the community advisory group , their main concern was whether we going to do in the area ? So one of the things that we started to look at was utilizing revegetation plots or grass plots to really help improve the visual appeal of the site and help with dust control. After that that was our first item or first reuse that we put into place and that has grown over time. We also do have a network of seven injection wells that has grown over the years and we are able to inject the treated water directly into the aquifer and then over the past year we have also installed to infiltration galleries and that enables us to give us a way of giving -- reuse water and get it back into the aquifer without putting it directly on top of the aquifer. Energy to groundwater flow paths. If you will see down to the left there is a view of the infiltration gallery that was installed in the past year. Our next treatment system is the EA 05 Graham treatment system we have one extraction well that feed into this treatment system and it has a truly capacity afforded visit a 500 gallons per minutes for this or bringing in the water has been conveyed through the LGAC system and is the treated for VOC. We do have a vac filter associated with this and helps remove small particles it will allow us when injecting water back into the aquifer if you have particles in the water it can create or cause your injection wells to clog up faster so we do have pre-and post factors to ensure minimal downtime if this need to be clean. This is also located in an area near the flood control District. They will utilize the treated water to put onto the field for duck control when doing any type of maintenance in the area and they also used in the past when they have any construction activities going on. Our next treatment system is the DLA six treatment system. We have two extraction Wells that feed the treatment system and combine the arch extracting six and 25 gallons per minute those are also conveyed to LGAC . This is the one that Marquette mentioned previously located in the city park and we did some things in order to make it more appealing to the city park and that's why you'll see in this picture that those two vessels are a little bit below grounds. People are in the park or as they are walking by they can't see the vessels above the fence. The treated water has been discharged either back into the aquifer but with client -- five injection wells and orgies for irrigation to the good your community Park. Then the water is continuously being conveyed through a closed loop heat exchanger at a church nearby. It's to allow cooling water district to be used as cooling water, reduce the heat and cooling costs of the church and I will touch on in a little bit. So the first reuse is a good your community Park and this is when we first install the system, but I take out there with the possibility of doing this and then in 2012 when we did the global access agreement this case to fruition and we put in the pump status in order for them to utilize the water . If something were to the EPA on into different modeling to determine how much water needed to be going back into the injection wells in order to create hydraulic barrier between the plume and city supply wells. We came up with a number that was agreeable by looking at both the model and something we continue to monitor on a monthly basis to ensure that we are within our parameters. We began construction of the irrigation system and in 2013 city of good your youth 21,000,000 gallons of treated groundwater from Jay North to

your gift Park and it sounds like they only utilize the system primarily from May through October but it sounds like they may start using it all year long if they decide to receive another area throughout the year. Complete their youth continues to grow. The EA 06 system when it was first installed it was only one extraction well EA 06 and we began to expand that system in 2010 . We began to expand it we started talking to the church about using a part of their land in order to run a pipeline through their during the discussion they indicated that they were interested in putting in are using our water so that they could decrease their overall cooling costs so we worked with both the church and also the EPA to get that approved and that does provide significant savings throughout the year and also allows us as an added benefit work at this point all of our water that we are treating is the beneficiary different beneficially reuse. This allows us to the number little bit because that is another beneficial reuse that it is being used for peer it passes through that cooling system or the heat exchange and goes either to the injection wells and/or over to the irrigation system. Our next site is the EA 08 irrigation system. This groundwater system or the extraction well expect anywhere from 325 to 360 gallons per minutes. That is then treated for VOC and the water is injected back into the aquifer through to injection wells . These injection wells were installed in 2000 and became operation in 2014. This allowed us to put a hydraulic barrier between the plume and the city -- well feel up to the Northwest of our subunit plume. Last but not least hours 33 a groundwater treatment system this well was actually a converted well this well is converted into an extraction well used to be in irrigation well and it treats approximately 350 to 400 gallons per minute and this water is treated for VOC with LGAC picked this water is either discharged to the our ID canal and the water is taken down and use for irrigation and or when Golden Buffalo purchased the potbelly golf course years ago -- Palm Valley golf course. We could continue to use the well because they own the well. And from there in exchange for that we would provide them with water . We provide them with water so they can operate their on-site irrigation ponds to Philip and the utilize that water to irrigate their 18 hole golf course. If you look down on the left the Palm Valley golf course they fill their water or ponds and then as they need it the utilize the water to irrigate the golf course. And that is how the PGA superfund site uses their clean groundwater.

Thank you Stephanie. We have a couple questions that I'm not sure they are entirely for you, but why do we start out and marking And if you want to come in please you. When does the beneficiary were used for the whole project?

It's an ongoing process. So the original in 1994 the water was extracted at the NTF and that was beneficiary doesn't beneficially -- grew from there I would say that the water has always been an officially reused however how it's been reused has evolved through out the years.

Stephanie, I think this one is severely for you, were there specific drinking water system specifications such as material type or certification that were required in the design and construction of the

treatment system given its reuse application and if so, can you name one or two Cuba

We meet the city standards for the pipelines we install when it comes to needing drinking water standards we are removing the contaminant from the groundwater that's not be delivered to any drinking water sources and so that's not something that fully applies to us .

I'm not sure who this question is for. Maybe Stephanie, maybe Café. What happens when the groundwater treatment objective has been made in the agency says the cleanup is complete, you can turn off the system, but everybody has become reliant on the treated water? >> That's a question for the long run at the site. I think we will be in operation cleaning up the shallow and the deep aquifer for quite some time. I imagine as we move forward and what happened at the site as groundwater conditions change we do make adjustments to our pumping and injections .

Catherine, I have another one for you. I think this is for you. Did you have any pushback or resistance from environmental activism groups and if so, how did you hit a vacuum

We actually haven't had pushback for the beneficial reuse of treated water other than the fact that we do test the water before
distribution for beneficial reuse. It's monitored so we ensure we have cleaned up the contamination. As with any complex project there have been times where we had glitches with the system that that's why we test to ensure we are distributing treated water.

I have another question, Catherine I think this is for you . Maybe for Stephanie. Was the water used in the cooling system for use for other purposes like irrigation after passing through the cooling system? >> Yes. That is correct.

For cigars through the cooling system and then it will either go directly into the injection wells and or it will be used for the community Park for irrigation.

And someone has asked is all of the 1.3 billion gallons of water treated each year we used? And if not, what amount is it reuse?

All of the water is reused and it's either re--- injected back into the aquifer or reused in infiltration galleries, the grass plots. It goes as the irrigation for the community Park and or also irrigation for Palm Valley golf course it's all used for irrigation purposes.

That's great. Why do we move on to last part of a presentation
which we are calling resources and contacts site. I want to thank all of our presenters today because this site is such a fascinating example of site reuse and it was great to hear how coordination between the site stakeholders and EPA can result in innovative solutions. Throughout the history of superfund redevelopment we have found that sharing stories
successful reuse project is one of the most effective tools for promoting reuse. The stories highlight effective tools and resources and

provide inspiration for those looking to reuse contaminated property. Our presenters have done justice but presenting the successes at the Phoenix could your airport area superfund site with us today. I want to thank our presenters. I would like to wrap up our time by providing you with some resources and then we will close out with a survey and see if we have any more Q&A. So SRI has a number of tools and resources available on our website to help you when considering any kind of racist -- reuse. People get more examples for the reuse. Fact sheets , technical reports and if considering a certain type of reuse I would encourage you to check out our partnership page to see which organization may be able to help and the SRI website is included a link with the additional resources on the right side of your Adobe connect screen. In addition , SRI has a redeveloping coordinator in each region to support reuse. If you like more information about an existing reuse project or to discuss exploring reuse opportunities for site near you feel free to reach out to the regional coordinator. And if you have any general questions about the material covered in the webinar you would like more information about SRI, don't hesitate to contact me or Frank and visit the website on your screen. Think what I will do now is ask Jean to switch the screen to the survey and would like you all to take a minute to fill that out

and we use your feedback when we consider future webinar topics. Feel free to let us know what topics you would like to see in please add your email address to the bottom left if you like to be on our notification list for future webinars. Well you do that will take last group questions here so one is, are there any ethical concessions regarding groundwater intensive uses in an environment for things like non-native vegetation cultivation, cultivation of water intensive crops or aquifer skeleton degradation? I'm not sure, maybe it's for Catherine? >> And sigh, I missed the first part of it. Was the question looking for moral or ethical can expect I guess someone is saying if you don't have a lot of water is it right -- are there moral issues involved with using the treated water for things that are sort of water intensive. If you use the water for things like non-native vegetation cultivation or water intensive crops, is that the second people have those discussions? Has anyone --

Can take a step at this -- stab?

Is a great question. For Arizona. Just to let you know

in the city of Goodyear what we strive to do is have community assets or parks where we can have our community residents and other second, as pointed destination and enjoy the different amenities. What we have tried to do is eliminate water intensive after water needs in the developments throughout the city. We have a very low gallons per capita for use. The other aspect is the state of Arizona and within the Phoenix active management area because we are an active management area the highest most regulated groundwater within the entire state. I mean even though it's a remediator groundwater, it still groundwater under state law and that groundwater has to be used in the most efficient manner. It has to meet the requirements under state law and rule and code. We have to report what the water is being beneficiary used for and how much water we received and for turf facility had to meet a number of very stringent guidelines. As you sought in the images if you

recall some of the images saw water intensive turf areas in the community Park but you also saw a lot of desert landscaping with different that require low or no water use. Just to let you know in Arizona especially in the Phoenix management there is very stringent requirements and it still groundwater and we treat it as a precious resource even though it's remediated.

Thanks, Margaret second what else want to add anything?

Stephanie or Catherine?

Now we have another question which is, someone is nothing what were the TCE concentrations before and after treatment? Epping that would be Catherine or Stephanie. >> It varies. For PJ South think highest concentration currently is in the vicinity of 80 parts is in the vicinity of 80 ppb. Whereas PTA North they were higher concentrations and we still are experiencing higher concentration in the source area. >> But those go through treatment and after treatment is complete they are non- detect. Everything being put back into the aquifer throughout the different beneficial reuse are all below the standard and are clean. >> [Indiscernible]

And we have a question what is the LGA budget for treating 1.3 billion gallons of water per year? >> That's not public information. I'm not able to discuss that.

Okay. Any other questions?

Epically are good. I want to thank panel for doing a terrific job or not only in the presentations but in answering the questions. I really appreciate your engagement and sharing with us. I think now we can turn this over to Michelle.

Thank you, Lisette presenters today. We had -- all the participants for your active participation in providing questions and comments throughout the webinar. Makes a more engaging. I do want to let everyone know that this webinar is part of the superfund redeveloping initiative webinar series and this is an ongoing series of topics relating to the reuse of superfund site and you will see on the webpage that a link to the CL UI and.org will take you to webinars on the topic. I encourage you if you want to learn more about other sites and their reuse issues and opportunities visit that site and you can view the archives. And with that I think I will turn it over to Jean Balent .

Thank you. I will walk everyone through a few final reminders before you close out the webinar. As noted copies of all the presentation materials along with other resources, documents and websites that were discussed during today's webinar are currently available on the seminar link . You can find a hyperlink off of the seminar homepage really also have those included on the middle right of your screen under related URLs. Scroll all the way to the very bottom
and you will find one link that is called seminar resources and that has everything including the other links that are in the related

URL page and copied of the present is interested if you happen to one lucky ones who replayed the archive the hyperlinks work . You are welcome to open us up and demo copies of the material as needed. I will ask if you can take just a short moment and share your feedback for today's session we do have copies or links to the seminar feedback available through the seminar URL window that you see in the middle right. Please note we read each and every submission that gets sent into the online feedback system and we count on your comments to help us continue to offer free online training for this webinar. I will ask you to take just a moment and share your thoughts for space webinar. If you participated in a group of each individual can actually feel at their own copy of the feedback form. This link is available from this point forward so those watching the archives you also can share your feedback. We often get request for certificates for participation. We are testing out a certificate generation 12 but that is not fully available for all of our webinars. However, if you share feedback with today's event there is a box that you can check on the form that will at least email confirmation email to you that confirms you submitted feedback for the live event. Most the time if you say that email along with the registration email are copies of materials that is enough to document your participation to that you can earn credit for attending today's session. You have different need additional help you can reach out to me . I will be more than happy to help you. It is want to remind everyone you can connect with us on Facebook link and twitter to find out about the latest webinars as soon as they are available. As noted today session will be made available through recorded archive and you should get an email letting you know when that is available. Proximally wanted to return want to thank the nearly 130 individuals who join us from all over the world for today's broadcasts as well as all of the organizers and presenters that took time out to check the story. Thank you so very much for joining us this is the formal conclusion. >>
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