

DRAFT MINUTES
WATER QUALITY MANAGEMENT ADVISORY COUNCIL
April 25, 2017
Oklahoma Department of Environmental Quality
Multipurpose Room
Oklahoma City, Oklahoma

Official WQMAC
To be approved at the July 25, 2017 Meeting

Notice of Public Meeting – The Water Quality Management Advisory Council (WQMAC) convened for a Regular Meeting at 2:00 p.m. at the Oklahoma Department of Environmental Quality (DEQ), 707 North Robinson, Oklahoma City, Oklahoma. The meeting was held in accordance with the Open Meeting Act, with notice of the meeting given to the Secretary of State on October 13, 2016. The agenda was posted at DEQ twenty-four hours prior to the meeting. Due to no quorum Ms. Shellie Chard, Division Director of the WQD, advised Mr. Duane Winegardner, Chair, to go to the discussion of rulemaking and then go back to calling the meeting to order, roll call and approval of the minutes.

MEMBERS PRESENT

Robert Carr
Brian Duzan
Mark Matheson
Jon Nelson
Steve Sowers
Debbie Wells
Duane Winegardner

MEMBERS ABSENT

Jim Rodriguez
Jeff Short
Terry Wyatt

DEQ STAFF PRESENT

Shellie Chard
Chris Armstrong
Mark Hildebrand
Richard McDaniel
Jennifer Boyle
Michelle Wynn
Travis Couch
Patty Thompson
Lloyd Kirk
Terry Lyhane
Lee Dooley
Hillary Young
Martha Penisten
Sarah Penn
Stephen Baldrige
Greg Carr
Traci Kelly
Quiana Fields

OTHERS PRESENT

Lynette Wrany, Court Reporter

DISCUSSION OF RULEMAKING FOR FY 2018:

OAC 252:628 – INDIRECT POTABLE REUSE – SURFACE WATER AUGMENTATION
– Mr. Saba Tahmassebi, Engineering Manager of the DEQ, stated that the DEQ staff will be proposing a new Chapter of rules for Indirect Potable Reuse for later this year. Also, gave a presentation on an update of the progress of the workgroup consisting of Oklahoma Water Resources Board, national experts, municipalities and DEQ.
See transcript pages 4 - 29

Mr. Nelson entered the meeting.

OAC 252:653 – AQUIFER STORAGE AND RECOVERY – Mr. Tahmassebi, stated that the DEQ staff will be proposing a new Chapter of rules for Aquifer Storage and Recovery for later this year. Also, gave a presentation on an update of the progress of the workgroup consisting of subject matter experts.

See transcript pages 29 - 47

Mr. Winegardner called the meeting to order. Ms. Quiana Fields called roll and confirmed a quorum was present.

See transcript pages 47 - 49

Approval of Minutes from the January 10, 2017 Meeting – Mr. Winegardner called for a motion to approve the Minutes of the January 10, 2017 Regular Meeting. Mr. Matheson moved to approve and Ms. Wells made the second.

See transcript pages 49 - 50

Robert Carr	Yes	Steve Sowers	Yes
Brian Duzan	Yes	Debbie Wells	Yes
Mark Matheson	Yes	Duane Winegardner	Yes
Jon Nelson	Abstain		

DIRECTOR'S REPORT – Ms. Chard provided an update on other division activities.

See transcript pages 50 - 61

NEW BUSINESS – None

ANNOUNCEMENTS – The next scheduled meeting is on Tuesday, July 25, 2017, 2:00 p. m. at DEQ.

ADJOURNMENT – Mr. Matheson moved to adjourn and Mr. Duzan made the second. The meeting was adjourned at 3:30 p.m.

See transcript pages 61 - 62

Robert Carr	Yes	Steve Sowers	Yes
Brian Duzan	Yes	Debbie Wells	Yes
Mark Matheson	Yes	Duane Winegardner	Yes
Jon Nelson	Yes		

Transcripts and Attendance Sheet are attached as an official part of these Minutes.

<p>1 OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY 2 3 4 5 6 7 8 9 10 11 WATER QUALITY MANAGEMENT ADVISORY COUNCIL 12 REGULAR MEETING 13 APRIL 25, 2017 - 2:00 P.M. 14 15 16 17 Multi-Purpose Room, 1st Floor 18 DEQ Building 19 707 N. Robinson 20 Oklahoma City, OK 21 22 23 24 Reported by Lynette H. Wrany, C.S.R. #1167 25</p>	<p>1 CALL TO ORDER - 2:00 P.M. 2 CHAIRMAN DUANE WINEGARDNER: Good afternoon. 3 Welcome to our meeting this afternoon. 4 We are not having a quorum right now, but we 5 will start with some of the non-voting type things, 6 such as the discussion of the rulemakings. And we'll 7 start with that. 8 And then when -- we are expecting one or two 9 more members to be here in just a few minutes. And 10 then when that happens, we will go back to the roll 11 call and have the formal opening of the meeting. 12 So, Saba, are you going to address us today 13 on the Indirect Potable Water Reuse? Do we need to 14 move so we can see something? Or -- 15 MR. SABA TAHMASSEBI: You know, in five 16 minutes you will. 17 CHAIRMAN DUANE WINEGARDNER: Okay. 18 MR. SABA TAHMASSEBI: In five minutes I think 19 you may want to go sit at that very front row. This 20 is just like a country wedding. We have the front row 21 for the family of the groom and the bride. You can go 22 sit there. 23 But then the deal is that, when you want to 24 ask questions, because this is being recorded, we ask 25 you to, please, come here at the podium or somewhere</p>
<p>1 COUNCIL MEMBERS PRESENT: 2 Mr. Robert Carr 3 Mr. Brian Duzan 4 Mr. Mark Matheson 5 Mr. Jon Nelson 6 Mr. Steve Sowers 7 Ms. Debbie Wells 8 Mr. Duane Winegardner - Chairman 9 10 COUNCIL MEMBERS ABSENT: 11 Mr. Jeffrey Short - Vice Chairman 12 Mr. Jim Rodriguez 13 Ms. Terry Wyatt 14 15 OTHERS APPEARING: 16 Mr. Saba Tahmassebi, Chief Engineer, DEQ 17 Mr. Michael Graves, Garver Engineering 18 Mr. Greg Carr, Chief Engineer, Water Quality 19 Division 20 Mr. Mark Hildebrand, Environmental Program 21 Manager, Water Quality Division 22 Ms. Shellie Chard, Director, Water Quality 23 Division 24 Ms. Quiana Fields, Board and Council 25 Secretary</p>	<p>1 else. Ask your questions there so it can get 2 recorded. 3 CHAIRMAN DUANE WINEGARDNER: Okay. 4 MR. SABA TAHMASSEBI: Well, may I start? 5 CHAIRMAN DUANE WINEGARDNER: Go right 6 ahead. 7 MR. SABA TAHMASSEBI: This is on, right? 8 MS. QUIANA FIELDS: No, it's not on. 9 MR. SABA TAHMASSEBI: It's not on. Put my 10 glasses on. Is it on now? 11 MS. SHELLIE R. CHARD: The red light's not 12 on. 13 MR. SABA TAHMASSEBI: Red light is on, but -- 14 Oh, yeah. The red light. 15 I am new here. I have only worked here for 16 like 27 years. Eventually I'm going to learn how to 17 use this equipment. 18 Well, folks, thank you so much for 19 accommodating us on a -- during a day where we don't 20 have any actual rules for your consideration. 21 But we have a very aggressive regulatory 22 agenda this year. And we've talked to you about this 23 over the past several months or even last year about 24 what we are up to. But now that we are getting so 25 close to having rules, and that's going to happen this</p>

<p style="text-align: right;">5</p> <p>1 year, we wanted to make -- provide you an update and 2 make you aware of what we're doing, sort of get you 3 onboard with what's going on at DEQ. 4 We are super excited about this aggressive 5 agenda. It all started when we were hit by the 6 drought a few years ago and we realized that we at 7 DEQ, we play a role in providing water security as far 8 as quantity goes and as far as quality goes for the 9 sake of Oklahoma. 10 So we started thinking about what is it that 11 we can do to help us be in a better position to 12 mitigate the impacts of drought the next time that it 13 hits. 14 And you're already aware of some of the 15 initiatives that we've had, because some of them have 16 been on the front page of newspapers. They have to do 17 with water conservation, water audits. They have to 18 do with some of the innovations that Oklahoma has had 19 with the management of waste water residuals from 20 drinking water treatment operations. We've talked to 21 you about these before in the past and they have been, 22 like I said, on the front page of newspaper articles. 23 A couple of other things that we are doing in 24 Oklahoma, as far as the regulatory arena is concerned, 25 we have put together a group to address aquifer</p>	<p style="text-align: right;">7</p> <p>1 Oklahoma. And after that, Greg Carr, who is the new 2 Chief Engineer of the Water Quality Division, he will 3 make specific comments about the workgroup, what we've 4 been up to and where we are. 5 And then after that, we will open the floor 6 for questions and you can ask any and all questions 7 and, per our procedures, if there are folks in the 8 public who would like to make comments or ask 9 questions, we also welcome that. 10 And those of you who knew Carl Parrott well 11 and you worked with him for over the years, he was 12 very involved in water reuse initiatives in Oklahoma. 13 So we asked him to also continue his work on the 14 workgroup and he's an active member of the workgroup 15 together with other folks. And Greg will go over the 16 membership. 17 So with that, I would like to ask Michael to, 18 please, come here. And this is the time that you can 19 go and go sit elsewhere. 20 CHAIRMAN DUANE WINEGARDNER: Hey, Saba? 21 MR. SABA TAHMASSEBI: Yes, sir. 22 CHAIRMAN DUANE WINEGARDNER: I forgot to ask 23 you. Are we the bride's side or the groom's side? 24 MR. MICHAEL GRAVES: Thank you, Saba. 25 Thank you, Council, for the opportunity to</p>
<p style="text-align: right;">6</p> <p>1 storage and recovery. That is the second presentation 2 for today. And also, we have a workgroup that is 3 developing rules for IPR, Indirect Potable Reuse. And 4 we have other folks who are going to make 5 presentations about this to you. 6 Let me introduce what the IPR workgroup does. 7 I have been involved with it for three years myself. 8 And this is a group of folks from municipalities, from 9 industry, from regulatory agencies who came together 10 and put together a workgroup to come up with a water 11 reuse program in Oklahoma. 12 That workgroup gave way to a smaller 13 workgroup that is actually working on resolving all 14 the issues that you have with IPR and actually write 15 the rules. This subgroup is chaired by two folks who 16 are not even DEQ employees. 17 One of them is Michael. He is with -- 18 Michael Graves. He is a principal with Garver 19 Engineering in Norman. 20 And another one, another member, is an 21 ex-professor at Ohio State who is a Stanford Ph.D., 22 Ellen McDonald. She works in Texas. And she is the 23 other Co-Chair of this group. 24 So we have asked Michael to give a 25 introduction to IPR, what IPR is, why we need it in</p>	<p style="text-align: right;">8</p> <p>1 just give you a brief introduction to Indirect Potable 2 Reuse. 3 I'll echo some of what Saba said regarding 4 the collaboration amongst the folks that are involved 5 in this committee. 6 It's been -- it's been a little longer than 7 that, a little longer than three years for me, Saba, 8 when we -- some of you may recall we first developed 9 non-potable reuse regulations five, six years ago. 10 And that has continued on. That's been a very 11 successful program. There are actual projects that 12 are reducing their potable water demands right now by 13 using non-potable water for irrigation practices and 14 so forth. And the workgroup and certainly DEQ 15 deserves a lot of credit for that. 16 (Mr. Jon Nelson entered the meeting.) 17 This group is -- has got some -- has taken 18 care of a lot heavy lifting over the last several 19 years. There's a little bit left to go. I think we 20 have a finish line in sight. But it's been -- it's 21 been a pleasure to get a chance to partner with not 22 only this agency, but the Water Resources Board in 23 development of these regulations. 24 So with that, why would we -- why would we 25 want to reuse waste water? Specific to Oklahoma,</p>

<p style="text-align: right;">9</p> <p>1 there are some really obvious water availability 2 drivers for reusing waste water. 3 Of course, House Bill 3055 initiated the 4 Water for 2060 Act. Most of you guys and gals are 5 familiar with that and its bold initiative, the first 6 of its kind in the country, and maybe still the only 7 of its kind to commit a state to using no more fresh 8 water 50 years from the time that Act was enabled. 9 So there's a -- there's a big, big driver 10 there. Obviously, reuse and recycling and reclamation 11 of water is an essential item for us to be able to 12 meet that goal. 13 Another reason for considering indirect 14 potable reuse of waste water is to evaluate that 15 against what are increasing costs associated with 16 importing water from outside a -- outside its own 17 basin. The energy costs associated with delivery of 18 that water, sometimes hundreds of miles away, the 19 reservoir construction costs to store that water can 20 quickly create some significant costs for a utility. 21 Whereas, the recycling of waste water is a water 22 supply that is drought resistant. 23 People use water in their homes year around. 24 Obviously, we use more water from an irrigation 25 standpoint in the summer, but that's not collected in</p>	<p style="text-align: right;">11</p> <p>1 what's kind of an 85 percent removal of conventional 2 pollutants, it's now pretty standard that we get 3 greater than 95 percent removal of those conventional 4 pollutants. So this is some really high quality water 5 that's available from our waste water or water 6 reclamation facilities. 7 So specifically with regard to IPR, what are 8 we talking about here? I think I have a laser on 9 here, Saba. I do. 10 So we have the sanitary sewer that's 11 collected from the community, homes, businesses, 12 commercial activities, collected in a collection 13 system within the community and conveyed to a water 14 reclamation facility, which is depicted here. 15 Typically for a IPR project, there is some 16 additional treatment component required. And Greg may 17 talk about some of the contaminants that we are 18 targeting with regard to why we need some additional 19 treatment at a standard water reclamation facility. 20 But there is some -- some advanced treatment that 21 occurs. And then the water is typically discharged to 22 a water body. Most times that's a stream, but 23 sometimes it can be a lake. In this case, we, from an 24 IPR standpoint, we refer to that reservoir or lake as 25 an environmental buffer.</p>
<p style="text-align: right;">10</p> <p>1 our sanitary sewers. So the water that we do use in 2 our homes, it is drought proof, because you use it 3 year around, regardless of whether it's winter or 4 summer. Capturing some of that water and reusing it, 5 treating it, obviously, to advanced standards and 6 reusing that water for potable uses is something that 7 just makes a lot of sense. 8 Another driver that's often overlooked that 9 can be significant for indirect potable reuse projects 10 is that waste water discharge standards are becoming 11 more and more advanced. We have a very robust 12 regulatory process to improve our streams, and rivers, 13 and lakes and that sometimes results or requires 14 municipalities to consider advanced treatment 15 alternatives in order to meet those increasing 16 discharge limits that are often associated with a 17 total maximum daily load study or a waste load 18 allocation study. 19 So when a city has to invest in these 20 expensive treatment techniques, you kind of start to 21 ask yourself, you know, are there other uses for this 22 water, besides just discharging it to the neighboring 23 stream that they've always discharged to. And from an 24 increasing standard standpoint, you know, what used to 25 be the standard whenever I started in this business,</p>	<p style="text-align: right;">12</p> <p>1 Now this, in terms of IPR, is also, this 2 environmental buffer is also, somebody's public water 3 supply. And so there's a heightened sense of 4 accountability to develop rules and regulations to 5 focus on proper treatment techniques, proper 6 monitoring, and proper operational techniques in order 7 to ensure that that environmental buffer is maintained 8 from a public health and ecological standpoint. 9 And so, that's -- that's where -- and maybe 10 Greg is going to talk a little bit about that today. 11 But that's where a lot of our focus has been, is on 12 protecting that public water supply for use by the 13 general public. 14 Now, we're not done yet, though. We still 15 have this really awesome tool that we call our 16 drinking water treatment plant. Now, the drinking 17 water treatment plant is required to meet the Safe 18 Drinking Water Act. This agency helps administer that 19 Safe Drinking Water Act and oversee that Safe Drinking 20 Water Act. And so, once it's removed from the 21 environmental buffer, the treatment that it undergoes 22 in a drinking water treatment facility is done to make 23 sure that, once the water ultimately reaches the tap, 24 that it is safe for public consumption. 25 Some regional examples, these are active,</p>

<p style="text-align: right;">13</p> <p>1 ongoing or recently completed potable reuse project 2 studies that I'm aware of. And I just looked at 3 Oklahoma and Texas. We're involved in many of these. 4 Some of these are other consultants. Some of these 5 are actually moving forward or have moved forward with 6 capital improvements, some of which are direct potable 7 reuse. We don't have time today to dive into the 8 details of direct. But basically direct or DPR 9 bypasses that environmental buffer that I spoke of 10 earlier and takes the treated effluent directly to the 11 drinking water treatment facility. 12 A little closer to home, and there are -- up 13 there -- you saw there are multiple locations in 14 Lawton or in Oklahoma where these are being evaluated. 15 Lawton is one of those. This is an aerial of Lawton's 16 water reclamation facility. 17 What Lawton is considering, first of all, 18 they are looking for additional water supply. They 19 had a -- they were hit very severely by the drought a 20 few years back. In fact, their total water supply was 21 down to less than 50 percent. Growing up in that 22 area, I thought Lawton was water rich. They have 23 access to Lake Ellsworth, Lake Lawtonka and Waurika 24 Lake. But the drought hit and it hit hard. 25 And so, they're evaluating numerous</p>	<p style="text-align: right;">15</p> <p>1 concerned about. But there will be additional 2 treatment required and this agency, with the 3 workgroup's help, is defining what that additional 4 treatment requirement should be as we speak. 5 And so with that, I think I'll turn it back 6 over to Saba. 7 MR. SABA TAHMASSEBI. Thank you so much, 8 Michael. 9 I think just because of the logistics of 10 where the speakers are, maybe it's a good idea to wait 11 until the end and then ask questions. 12 Greg, you can come. Yes. Greg Carr is Chief 13 Engineer of DEQ Water Quality Division. He will make 14 a presentation. I'm going to over to load your 15 presentation. 16 MR. GREG CARR. Okay. Appreciate everyone 17 being here. My name is Greg Carr. I'm the Water 18 Quality Division Chief Engineer. I'll be talking to 19 you today about Indirect Potable Reuse through Surface 20 Water Augmentation and our proposed rules for such. 21 All right. So towards the end of these 22 proposed rules, we have formed a Water Quality 23 Standard Subcommittee. We have members from DEQ, the 24 Oklahoma Water Resources Board, municipalities. We've 25 also got national technical experts, such as Alan</p>
<p style="text-align: right;">14</p> <p>1 alternative water supplies, reuse just being one of 2 those. And one of the concepts that they're 3 evaluating is currently their waste water treatment 4 plant discharges to Nine Mile Creek, which is shown 5 there at the bottom of the figure. Their objective is 6 to evaluate and develop treatment costs to divert that 7 discharge to either a tributary to Waurika Lake or 8 their Waurika Pipeline, which conveys water from 9 Waurika Lake to Lake Ellsworth. In that scenario, 10 either Waurika Lake or Lake Ellsworth would serve as 11 that environmental buffer that I mentioned earlier. 12 And I don't have time to mention in detail all the 13 projects that are going on in Oklahoma, but there are 14 others. 15 The last component that I wanted to leave you 16 with today regarding an introduction to IPR is that 17 the treatment components are important. There is a 18 multi-barrier approach that this agency is evaluating 19 to ensure that safe water is discharged to that 20 environmental buffer. Most of these barriers exist 21 within an existing waste water treatment plant. In 22 fact, the biological processes alone in a 23 well-operated water reclamation facility or waste 24 water treatment plant do a really good job at 25 addressing a lot of the contaminants that we're</p>	<p style="text-align: right;">16</p> <p>1 Plummer Associates, Black & Veatch, Carollo Engineers, 2 and Garver Engineers. Michael Graves is still here. I 3 believe. 4 This is a copy of our Consensus Table. I'm 5 having a little trouble seeing that. But, as you can 6 see, this is basically a synopsis of what our 7 subcommittee is talking about and how we try to arrive 8 at consensus and have discussion on the various 9 topics. 10 The first column is Pollutants, for example, 11 Pathogens. You can see the next column is the 12 Subcommittee Status. And we mostly have consensus 13 there. Probably about an 8 1/2 out of 12. There's a 14 few we're still discussing, such as Secondary MCLs and 15 part of the Nutrients requirements. 16 The ORWB Water Quality Standards is the next 17 column, with the applicable water quality standards. 18 In-lake targets, as applicable, in the next column, 19 then we have the applicable Translator. After that is 20 the End-of-pipe requirements and then the final column 21 is Notes. And we've got a little blow up of the chart 22 here. 23 So you can see, so Pathogens is the first 24 pollutant that we looked at, such as we've got 25 Adenovirus, Salmonella, we've got Giardia we're</p>

<p style="text-align: right;">17</p> <p>1 looking at and Cryptosporidium. We've got some log 2 requirements for those. 3 Five day Carbonaceous Biological Oxygen 4 Demand, Turbidity. We've got Nutrients, specifically 5 total nitrogen and total phosphorus. Chlorophyll-a, 6 Primary MCLs, Secondary MCLs, these are from the 7 Drinking Water Standards. 8 We've got Contaminants of Emerging Concern, 9 both non-carcinogenic and carcinogenic, and Total 10 Organic Carbon. 11 And as far as the Water Quality Standards go, 12 we've got them listed there. I believe all of those 13 are narrative for beneficial use and anti-degradation, 14 with the exception of the chlorophyll-a requirement 15 for SWS, Sensitive Public and Private Water Supplies. 16 And that sets a numerical standard of 10 micrograms 17 per liter. Those are existing. 18 This is what we call our four box model for 19 developing nutrient limits. Box Number 1 is our 20 technology-based limits for total nitrogen and total 21 phosphorus. 22 We've got a Box 2, Water Quality Based Limits 23 for Total Maximum Daily Load requirements as 24 applicable. 25 Box 3 is our Water Quality Based Limits,</p>	<p style="text-align: right;">19</p> <p>1 lake corresponds to a high volume for the -- high 2 concentration for the pollutant. 3 There is a glaring error here. I put Chapter 4 626. What we are proposing as the number for Indirect 5 Potable Reuse is 628. 626 is already taken. 6 But 628 is what we're proposing for Indirect 7 Potable Reuse. We have the following subchapters: 8 Chapter number 1 is General Provisions. And Terry 9 Lyhane is leading the writing on that. Benchmark 10 Quality Standards, that's led by Mike Moe. Technology 11 Standards is led by Patrick Rosch. Operational 12 Standard by Patty Thompson. Permitting is led by Greg 13 Carr, me. And Lake Monitoring Parameters and 14 Frequency is led by Karen Steele. 15 And then, as Saba said, we'll save the 16 questions. But I'm excited about it. 17 MR. SABA TAHMASSEBI. Folks, before you -- 18 before we open this up to questions, I'd like to let 19 the Council and also the audience know that this has 20 been a monumental effort really. 21 What Greg showed you was just a synopsis of 22 the types of tools that the workgroup has been using 23 and the logical sequence of events. We have these 24 types of flow charts for various contaminants, which 25 state what is the logical sequence of addressing a</p>
<p style="text-align: right;">18</p> <p>1 which basically protects the existing criteria for 2 chlorophyll-a, turbidity and dissolved oxygen. And 3 then these all feed our lowest end-of-pipe values for 4 total nitrogen and total phosphorus. 5 Box 4 is our Monitoring and Analysis box. 6 It's our feedback box. It allows us to monitor and 7 analyze. And basically there may be an effect on 8 permit limits as we see a need for that. 9 This is our Hydrologic Mass Balance Model. 10 It's one of the several tools that the sub-committee 11 has been using. This actual spreadsheet was developed 12 by Terry Lyhane. Little shout out. He worked on this 13 for us. 14 It's essentially a Mass Balance Model. This 15 one helps us predict conservative constituents, 16 conservative substances and track their concentrations 17 in accordance with the predicted flows and levels in 18 lakes. 19 This one, in particular, is for Lake 20 Thunderbird. I believe we had COMCD data all the way 21 back to 1968, which is where the volume data came 22 from. And you can see the blue line, that is lake 23 volume. The gold line is the concentration of the 24 measured pollutants or predicted pollutant. You can 25 see they correspond. Basically a low volume in the</p>	<p style="text-align: right;">20</p> <p>1 contaminant. And then the idea here is to be as 2 protective as possible to make sure that the water 3 resources in Oklahoma remain safe for human health and 4 the risks are fully understood and analyzed and, at 5 the same time, that we are following a common-sense 6 approach, something that is not prohibitive. 7 Obviously, if you want to make the risk to be 8 zero, then what you have to do is do nothing. 9 Because, if you do nothing, then there is zero risk. 10 So the question becomes what kind of risk is 11 acceptable. With this group of folks, national 12 experts, the stakeholders, DEQ and Water Board folks, 13 we've been able to do that. 14 And as you know, as you have worked with 15 engineers, you know that every time you have five 16 engineers in the room, you have three dissenting 17 opinions. And at the same time, you also know that -- 18 you may not know this. I didn't know this until 19 recently -- that engineers are also philosophers. So 20 not only -- in these meetings not only we talk about 21 science and engineering and equations, we talk about 22 people's philosophies, too. 23 So these are long, long meetings. The 24 meetings that we have are five-hour meetings. The 25 workgroup meetings are five-hour meetings. People</p>

<p style="text-align: right;">21</p> <p>1 call me a slave driver. And I think they are trying 2 to be nice with me when they call me that. 3 And at DEQ this has been a great effort, too. 4 We have Tuesday meetings for two hours every week. 5 And then we have Thursday meetings every other week. 6 So we have one and a half two hour meetings every week 7 to get this done. And we've put significant 8 resources, DEQ resources, to get this done. 9 And I know that OWRB the same way. They are 10 spending a lot of their human capital in trying to get 11 this done. And this is not just engineers and 12 hydrologists, but also lawyers and administrators, 13 everybody coming together to get this done just to 14 make sure that at the end we have a program that is 15 responsive to the public, addresses our water security 16 issues, so that we can have economic prosperity in our 17 state and be safe and also be doable. This is what we 18 want to do and this is where we have everyone together 19 working together to make this happen. 20 And our schedule is that we hope to have 21 these rules -- it's not that we hope to, but we are 22 going to give you these rules for your consideration 23 this year. And we hope to go to the Board with them 24 during the first meeting of 20, what is next year, 18, 25 and then go to the next legislative session for their</p>	<p style="text-align: right;">23</p> <p>1 discussion. 2 I know you guys have regular meetings to 3 discuss it, but I thought maybe the public might have 4 some discussion along the way. 5 MR. SABA TAHMASSEBI: Yes. By all means. 6 CHAIRMAN DUANE WINEGARDNER: One of the 7 things, if I may comment just very briefly. 8 MR. SABA TAHMASSEBI: Yes, sir. 9 CHAIRMAN DUANE WINEGARDNER: One of the 10 things we need to do is promote public education. I 11 know there -- I was discussing the same topic with 12 some people from some other states and we've come to 13 the conclusion that we generally should start in about 14 Second Grade and work our way up so that by the time 15 that these people get home and convince their parents 16 that it's worth listening to, because I know we've had 17 lots of discussion about Lake Thunderbird and the 18 various cities involved there. And I think we need a 19 lot more education and we need to promote that. 20 That's my take on it. 21 MR. SABA TAHMASSEBI: That's a -- that's an 22 excellent comment. I know that the municipalities 23 that are interested in this, public education is 24 something that they are really concerned with and they 25 are addressing it actively.</p>
<p style="text-align: right;">22</p> <p>1 approval. 2 With that, I open this to questions. And 3 we've got various members from the workgroup, from the 4 Water Board, from DEQ, our experts, they are in the 5 room. And you can ask these questions now if you 6 like. 7 And then our folks are going to stick around 8 after the meeting, too. So if there are some issues 9 that you have that you want to address after the 10 meeting they are going to be here to talk to you 11 about that. So go ahead. 12 MS. SHELLIE R. CHARD: You might have them 13 use the microphone, to have people come up to the 14 microphone. 15 MR. SABA TAHMASSEBI: Yes. Come to the 16 microphone and ask questions. 17 Duane, you can either use Debbie's, if you'd 18 like, or you can come up here. 19 CHAIRMAN DUANE WINEGARDNER: Okay. Go ahead. 20 I just moved around here so I could -- 21 MR. SABA TAHMASSEBI: Yes, you can. 22 CHAIRMAN DUANE WINEGARDNER: -- just kind of 23 see what's going on. 24 Questions? This has been such an important 25 factor in our water use and there should be some</p>	<p style="text-align: right;">24</p> <p>1 Our workgroup has also divided into various 2 subgroups. And one of the subgroups is also 3 addressing public education, although there won't be a 4 DEQ regulatory aspect to that. But there is a, as 5 part of the workgroup activities, that's being 6 addressed through one of the subworkgroups. 7 CHAIRMAN DUANE WINEGARDNER: Very good. 8 MR. JON NELSON: So, Saba, I think I saw just 9 two -- two locations in your chart that reflected 10 additional discussion and most of them were resolved, 11 right? 12 MR. SABA TAHMASSEBI: Correct, yes. 13 MR. JON NELSON: Okay. So -- so it looks 14 like the schedule will look good this time for next 15 year to have draft standards? 16 MR. SABA TAHMASSEBI: Well, we are hoping 17 that it won't be next year, it will be this year. 18 MR. JON NELSON: Well, this -- okay. Or 19 early '18 or late, late '17? 20 MR. SABA TAHMASSEBI: Yeah. I think that 21 Mark can help me with this. But the thought is for us 22 to come up -- to come to you with a draft of our rules 23 in September and then the final version, DEQ version, 24 later on this year. And, hopefully, have your buy in 25 and go to the Board with it next year.</p>

25	<p>1 Mark, you want to comment on that?</p> <p>2 MR. MARK HILDEBRAND: That is right, Jon,</p> <p>3 We're planning on having draft rules and presenting</p> <p>4 them to you all at the September meeting, late</p> <p>5 September meeting, and then getting comments from</p> <p>6 everybody and letting everybody participate and have</p> <p>7 our public meetings and help us dress up our rule</p> <p>8 writing, and then come -- move forward with them in</p> <p>9 our early January meeting. And it would go forward to</p> <p>10 the February Board for them to vote on and move on to</p> <p>11 the Governor and Legislature.</p> <p>12 MR. JON NELSON: Okay. So it would be --</p> <p>13 it's the plan we should be chewing on something by the</p> <p>14 -- before the end of this year?</p> <p>15 MR. MARK HILDEBRAND: Oh, yeah. And we'll</p> <p>16 probably -- well, we plan on sending stuff out early</p> <p>17 fall, early fall to get at least to you all to give</p> <p>18 comments on. And then we'll move forward with</p> <p>19 everybody else. We want everybody in the rooms'</p> <p>20 comments, if you've got them, once we get these out.</p> <p>21 MR. JON NELSON: One of the questions I had,</p> <p>22 I know there is a lot of places in Oklahoma where</p> <p>23 we've got indirect reuse going on today. I mean,</p> <p>24 there's enough -- there's a discharge upstream of</p> <p>25 water sources. And I think -- I thought at one time</p>	27
26	<p>1 DEQ was taking a look at those locations, identifying</p> <p>2 those.</p> <p>3 Has there been any kind of -- has there been</p> <p>4 any kind of assessment done as to impacts, what these</p> <p>5 rules are going to do to those folks that are already</p> <p>6 in that situation, have been for years?</p> <p>7 MR. SABA TAHMASSEBI: Well, it is in our</p> <p>8 agenda to address the definition of IPR with our</p> <p>9 workgroup during our May 8th meeting.</p> <p>10 And then but the general DEQ sentiment is</p> <p>11 that these rules are not designed to be prohibitive or</p> <p>12 not designed to create obstacles to what is happening</p> <p>13 already.</p> <p>14 So somehow, and these are just my thoughts</p> <p>15 right now, somehow we are going to carve out a</p> <p>16 language for IPR that is for future projects and not</p> <p>17 for what happened, what's happening de facto right now</p> <p>18 elsewhere in Oklahoma.</p> <p>19 Because when you really look at it, most of</p> <p>20 us, most of us are drinking some kind of a reclaimed</p> <p>21 water. And there are some municipalities that drink</p> <p>22 mostly reclaimed water. And the idea is not to create</p> <p>23 problems for people when there are no environmental or</p> <p>24 human health problems.</p> <p>25 So these are just for -- right now what we</p>	28

<p style="text-align: right;">29</p> <p>1 It's a -- we talk. Our engineers and 2 philosophers tell us what they think. And then, after 3 much discussion, we come up with a solution that is a 4 consensus that is something that everybody can live 5 with. And at the end the rules that will come for 6 your consideration and your approval, they are the 7 workgroup products for both ASR and for IPR. 8 And for that reason, you know, I'm very 9 thankful to our national experts who have spent 10 tremendous amount of time and efforts bringing in 11 their expertise, free of charge, just to get this 12 done. Because they're really interested in having a 13 part in solving the drought situation in Oklahoma. 14 CHAIRMAN DUANE WINEGARDNER: Any other 15 questions? And if there are none, I think I'm going 16 to rule from the chair that we move ahead with the 17 Aquifer Storage and Recovery Presentation. 18 MR. SABA TAHMASSEBI: Yes. 19 CHAIRMAN DUANE WINEGARDNER: And then after 20 that, since we now appear to have a quorum, then we'll 21 take care of the minutes and the administrative 22 things. 23 MR. SABA TAHMASSEBI: And I'm very low tech 24 today. I'm the guy that changes the slides. 25 Yes. I'm really representing the Oklahoma</p>	<p style="text-align: right;">31</p> <p>1 location to intercept the flow of this water from west 2 to east where the east has too much water, the west 3 doesn't have enough water. And this way people in 4 west have surface water to use. 5 But then, when the drought hit, we thought 6 about providing options to municipalities and citizens 7 of Oklahoma to expand the portfolio of options that 8 they have to address the drought situation. And one 9 of them was ASR, injection or delivery of water into 10 the subsurface into aquifers for future recovery. 11 And this is, again, because of the water 12 security concerns as far as quantity goes and it's one 13 of the portfolio of options that we are providing our 14 folks. 15 We believe that if you build it, they will 16 come. So we are trying to put together this 17 regulatory structure, this administrative structure so 18 that people who want to use it, they have -- they have 19 something to -- they have follow through with it. 20 And what ASR rules are. The intent is that 21 these rules will provide an avenue for people who want 22 to intentionally deliver water to the subsurface for 23 future recovery, they can do that. This is what it 24 is. 25 What it's not, is not a vehicle for DEQ to do</p>
<p style="text-align: right;">30</p> <p>1 ASR workgroup here and sharing with you what the 2 progress of the workgroup has been so far. 3 First of all, for those of you who might not 4 know what ASR is, it's been -- we think, a lot of 5 people think, that during the times of drought under 6 certain circumstances it makes good sense to store the 7 water that we have underground, as opposed to in 8 reservoirs. Reservoirs, during the times of summer, 9 they can act as evaporation basins. And we lose a lot 10 of water due to evaporation. 11 And as an example, the Foss Reservoir, that 12 you're familiar with, they lose about 60 inches of 13 water every year due to evaporation. And under 14 certain circumstances it might make more sense to 15 store this water underground so that we do have water 16 for our citizens to use. 17 Some of you may or may know this, but the way 18 Oklahoma was designed is that water moves -- I know, 19 Bud, yes. You know, if you designed Oklahoma or not, 20 because you are smiling -- but water moves from west 21 to east. 22 West -- Western Oklahoma is about 1,000, 1200 23 feet, it's elevation is higher than Eastern Oklahoma. 24 So water moves from west to east. And then we put 25 these reservoirs strategically, we put them in</p>	<p style="text-align: right;">32</p> <p>1 enforcement. This is not something that we dreamed of 2 to go after pig farms or mines or anything. It's not 3 intended to be an enforcement tool. It is just that 4 if under certain circumstances it makes sense to 5 deliver the water to the subsurface, we don't want to 6 say that no, you can't, because we don't have rules 7 for it. We want to say that, yes, you can. Yes, you 8 can and this is how you can do it safely, if it makes 9 sense for you to do this. 10 Actually in our ASR definitions language we 11 are going carve out some activities that people are 12 concerned with. Some -- this is not a pig farm 13 regulation deal. This is not a mines regulation deal. 14 So we are going to carve out those activities and only 15 focus on intentional delivery of water for future 16 recovery, something like a municipality would do. 17 So we have formed this workgroup with the 18 best and brightest from DEQ, from the Water Resources 19 Board, the Corporation Commission, Department of 20 Agriculture, Oklahoma Geological Survey, U.S. 21 Geological Survey. And then, by the way, the Kerr Lab 22 is a new member of the workgroup. They're going to 23 start coming to our workgroup meetings, the next 24 workgroup meeting. The Office of the Secretary of 25 Energy and Environment.</p>

<p style="text-align: right;">33</p> <p>1 GWPC, you all know Mike Paque, his Deputy Dan 2 Yates, he is a member of the workgroup. Burns & 3 McDonnell, there is a -- this is the firm that 4 designed and operates the Wichita, Kansas ASR plant 5 and the engineer who is in charge of those operations, 6 a very smart fellow, he is part of the workgroup and 7 has been a tremendous asset to our workgroup. 8 Carollo Engineers. We have a gentleman, his 9 office is in Colorado, and he was one of the engineers 10 that was one of the minds behind the Water for 2060 11 and worked with OWRB to develop that plan. He is part 12 of the group. 13 And then the manager of the City of Ada. And 14 we also have representation from Oklahoma State 15 Legislature Scott Martin, Republican from Norman, he 16 is part of the workgroup. 17 So when the workgroup started working some 18 two and a half years ago, we identified that there 19 were three major obstacles to having successful 20 aquifer storage and recovery in Oklahoma. One of them 21 is ASR water rights. 22 If you inject water or deliver water at your 23 property, can your neighbor then produce it? Is it 24 recover it? Is it their water? Whose water is it? 25 This was not fully described in Oklahoma law. So</p>	<p style="text-align: right;">35</p> <p>1 happen for permitting. 2 And we are not reinventing the wheel. We 3 started this effort by surveying the other states. 4 And last year the workgroup developed a questionnaire 5 and submitted it to several states. We got very good 6 responses. And one of our -- is Tory here in the 7 room? She is not? Okay. I can get her to work, but 8 I can't get her to come to meetings. So I need to 9 work on that. 10 But she is a sharp, sharp scientist and she 11 was in charge of that effort. And she published this 12 effort at the GWPC's web page and went to Orlando last 13 year and presented that, the results of that study, to 14 a national audience. And that was the start of our 15 serious work at ASR, just we wanted to know what the 16 other states had done so we could piggyback on their 17 efforts. 18 And later on the workgroup, again with Tory, 19 we surveyed a handful of states to see what their 20 operational and permitting standards are for ASR so we 21 don't have to reinvent the wheel. And we are basing a 22 lot of our work on what other states have done. 23 We did this -- I'm not sure what's happening, 24 but -- well, I talked -- okay here. 25 So the general concepts, the first one is</p>
<p style="text-align: right;">34</p> <p>1 Senate Bill 1219 last year, in 2016, passed the 2 legislature which paves the way for OWRB to come up 3 with this mechanism of designating water rights for 4 the water that was delivered. And that mechanism 5 requires a DEQ permit or approval. And that's one of 6 the other reasons why we need to have these rules. 7 The second thing that the workgroup 8 identified was that our groundwater standards, our 9 anti-degradation standards, are so robust that it 10 precluded having ASR in any meaningful way in 11 Oklahoma. 12 So through the workings of the workgroup, we 13 developed language, OWRB developed language, to carve 14 out a section in the regulations for anti-degradation 15 and groundwater standards that allows for ASR to 16 happen. 17 We took two obstacles out of the way and 18 that's something that passed the Board just a couple 19 of months ago. And it will go through the legislative 20 approval during this session. 21 And then last is why we are here. And that's 22 the implementation and time frames. Now that the 23 groundwater standards are out of the way, the water 24 rights issues have been addressed, how do you do ASR? 25 We need to have a regulatory framework to make this</p>	<p style="text-align: right;">36</p> <p>1 treatment. We have raw water, some kind of river 2 water or water from another aquifer or whatever source 3 it is, it needs to get treated so that it is clean 4 enough to be delivered to the subsurface. So there's 5 that treatment aspect. And then that water needs to 6 get delivered to the subsurface. 7 And then we have monitoring of the raw water 8 and monitoring of the aquifer before we start the ASR. 9 And monitoring of the water wells in the ASR area. 10 It's going to be a element of pilot testing for the 11 aquifer and the subsequent monitoring. 12 The reason is that sometimes, due to the 13 geochemical characteristics of the aquifer and the 14 water, if you deliver water that is very clean into an 15 aquifer that is very clean, just because of the fact 16 that the geochemical characteristics are different, it 17 is possible that, as a result of that water delivery, 18 you can liberate some contaminants from the matrix of 19 the aquifer rock. So that needs to be checked. It 20 needs to be studied to make sure that doesn't happen. 21 I mean, one example is, arsenic or chromium 22 or other metals like lead, if they exist in the 23 geologic strata, they are part of the rock, and then, 24 when you change the geochemistry of the aquifer, they 25 dissolve into the water and we don't want that to</p>

<p style="text-align: right;">37</p> <p>1 happen. So we're going to have some testing done to 2 make sure that doesn't happen. 3 Then you have construction standards for the 4 recharge wells and for the infiltration basins. These 5 are the basins like ponds that have a permeable floor. 6 And water can percolate through these basins and 7 recharge the aquifer. 8 Then we have operating standards. Now that 9 you have got everything set up, how you're going to -- 10 how you're going to operate this; at what pressures, 11 what flow rates, what monitoring scheme. And then at 12 the end we have financial assurance. 13 So we have a DEQ team of rule writers and 14 they work under the direction of Hillary Young. 15 Hillary, you want to stand up for people to see who 16 you are? Hillary is a chief engineer for the Land 17 Protection Division. The UIC is under that, actually 18 has a staff of Water Quality and UIC folks, lawyers, 19 technical people. And they meet at least once a week 20 and they are writing the rules here. 21 Both Greg and Hillary are going to be here 22 after the meeting for you guys to get to know them 23 better and ask any questions that you may have. Any 24 subsequent rulemaking draft rules or ASR rulemaking, 25 they will be presented by Hillary. So you may want to</p>	<p style="text-align: right;">39</p> <p>1 Treatment Plant Construction Permit. You know, I know 2 what to do. There is a trick that Paul taught me 3 about. There you go. There is Paul. He's the other 4 guy I was telling you about. Okay. So -- 5 MR. STEPHEN BALDRIDGE: Do you think it would 6 be better to start with the other chart, because it 7 has the preliminary -- 8 MR. SABA TAHMASSEBI: Louder, Stephen. I'm 9 old. 10 MR. STEPHEN BALDRIDGE: Do you think it would 11 be better to start with the other chart, because it 12 has the preliminary stuff? 13 MR. SABA TAHMASSEBI: No. No. I purposely 14 decided to do this. 15 MR. STEPHEN BALDRIDGE: Okay. 16 MR. SABA TAHMASSEBI: Yes. This was Stephen 17 Baldrige, our UIC attorney. And once I learn how to 18 satisfy Stephen, I can die a happy man. He just is 19 never happy with what I do. 20 Okay. So here, now I can read that. You 21 have the Box 1, Permit Treatment Plant Construction 22 Permit. This is going to be Chapter 653, a brand new 23 chapter. It's not going to be under UIC. The reason 24 it's not going to be under UIC is because there are 25 some UIC aspects and some Water Quality aspects. So</p>
<p style="text-align: right;">38</p> <p>1 get to know her better. 2 The first subchapter is General Provisions. 3 And then Subchapter 3, at DEQ we don't like even 4 numbers, so 3 we have Raw Water and Aquifer 5 Characterization, followed by ASR Treatment Plant 6 Construction, Recharge Well and Infiltration Basin 7 Construction, and Aquifer Storage and Recovery 8 Operations. These are the different Subchapters. 9 Let me go over -- this is a conceptual flow 10 chart of how ASR works. First, your raw water goes to 11 Box 1. Box 1 is the ASR Treatment Plant Construction 12 Permit. This is not unlike the treatment plants that 13 we already have for waste water and drinking water. 14 The ASR treatment, you have elements of both waste 15 water and drinking water, depending on what the source 16 of the water is. 17 Once the water gets treated -- and you need 18 to have a permit. This is the first box that requires 19 an ASR permit. And the permit that is needed is down 20 here. Box 1, Treatment and -- I can't see from here. 21 MR. MARK HILDEBRAND: Construction Permit. 22 MR. SABA TAHMASSEBI: Yes, Treatment and 23 something else. 24 MS. SHELLIE R. CHARD: Construction Permit. 25 MR. SABA TAHMASSEBI: Treatment plant, yes.</p>	<p style="text-align: right;">40</p> <p>1 the Chapter 653 will get its authority from both Safe 2 Drinking Water Act and Clean Water Act and also UIC 3 Rules and Water Rules in Oklahoma. 4 So here, after the water gets treated, there 5 can be residuals from this treatment facility. And 6 they need to be addressed somehow. And we already 7 have the regulatory infrastructure to address them. 8 We have a permit for the management of the 9 treatment residuals. This might be a discharge 10 permit, it might be a deep underground injection well 11 permit to get rid of the treatment residuals. So Box 12 1A, we don't need to do anything about, because we 13 already have the regulatory infrastructure to address 14 them. 15 And then up here, after the water gets 16 treated, there's going to be some kind of a valve 17 here, just in case something goes wrong. Somehow the 18 water doesn't get properly treated, a valve is going 19 to be available, you can turn it on, and the water, 20 instead of going to the injection field is going to 21 get discharged into surface water or into some kind of 22 a storage basin. 23 We already have for Box 2, we already have 24 the regulatory infrastructure to address that and 25 there is nothing that we need to do, we need to do to</p>

<p style="text-align: right;">41</p> <p>1 address that.</p> <p>2 And then, if everything's – if everything is</p> <p>3 okay, then you need to have the construction of ASR</p> <p>4 water delivery to the subsurface. And then again,</p> <p>5 these are the 653 rules. You're going to have</p> <p>6 construction standards for Recharge Well Construction</p> <p>7 Permit, for infiltration basins and for any other</p> <p>8 delivery mechanism that might exist. If there is a</p> <p>9 trenches there or whatever system that it is. So</p> <p>10 there is going to be an ASR permit required for Box 3.</p> <p>11 And Box 4 is there is one permit that</p> <p>12 addresses the operation of everything. It's going</p> <p>13 to – this permit here. The final permit. The permit</p> <p>14 that gives folks the permission to deliver the water</p> <p>15 and start using ASR. It will have operation standards</p> <p>16 for treatment. It will -- like how often do you</p> <p>17 inspect the facility, what needs to be done, what</p> <p>18 needs to happen for the inspections. It's going to</p> <p>19 have requirements for the operation of the recharge</p> <p>20 wells and the infiltration basins.</p> <p>21 And the reason there are multi-colors here is</p> <p>22 that what is blue or, I guess, teal, this is what</p> <p>23 traditionally is a Water Quality issue, something that</p> <p>24 our 8th floor does. And what is beige is what is</p> <p>25 something that traditionally the 5th floor UIC group</p>	<p style="text-align: right;">43</p> <p>1 characterized.</p> <p>2 And then there needs to be a work plan for</p> <p>3 aquifer quality characterization. This is both in</p> <p>4 areal and vertical extent, what the quality of the</p> <p>5 water is. And based on that, there's going to be a</p> <p>6 communication between different parts of DEQ to</p> <p>7 determine the level to which the raw water needs to be</p> <p>8 treated prior to delivery to the subsurface. And</p> <p>9 that's the dark orange one. These are the initial</p> <p>10 steps. These are the new steps. These are things</p> <p>11 that we don't already have in our rules. We do not</p> <p>12 And then this is now Box 1 for the treatment.</p> <p>13 The box numbers correspond to the previous figure.</p> <p>14 We have for the Treatment Plant Construction</p> <p>15 Permit, we have submittal of an engineering report, we</p> <p>16 have submittal of engineering plant construction</p> <p>17 permit application, pilot testing of the ASR treatment</p> <p>18 plant just to make sure that the treatment unit's</p> <p>19 equipment, they treat the water the way they are</p> <p>20 supposed to.</p> <p>21 And then next, Permit for Management of the</p> <p>22 Treatment Residual. And we already have both OPDES</p> <p>23 Storage and UIC options available in the rules for</p> <p>24 them.</p> <p>25 Box 2, the OPDES, as we talked about, we</p>
<p style="text-align: right;">42</p> <p>1 does.</p> <p>2 So, Paul, if you would, please, let's go to</p> <p>3 the next one.</p> <p>4 So that was a -- yes. Also we can have,</p> <p>5 where it says ASR process. Yeah. This. Yeah, right</p> <p>6 there.</p> <p>7 Okay. So this is what Stephen wanted me to</p> <p>8 start with. So he's smiling. He's happy. We got to</p> <p>9 make Stephen happy.</p> <p>10 So the previous chart was conceptual and</p> <p>11 permit continuum. Now this is a temporal progression</p> <p>12 of what happens.</p> <p>13 First, there is an initial meeting with DEQ.</p> <p>14 Right off the bat we want to know what is the idea,</p> <p>15 where the water is coming from, where it's going, a</p> <p>16 statement of interest, so that, from the onset, we're</p> <p>17 all on the same page with the applicant and we can</p> <p>18 help them the best way we can.</p> <p>19 There is going to be a work plan for raw</p> <p>20 water characterization. If this is a surface water in</p> <p>21 some kind of a stream, it needs to get fully analyzed,</p> <p>22 characterized. During times of high flow, low flow,</p> <p>23 if there is a -- if there is a special event, some</p> <p>24 kind of a release upstream, we need to know how that</p> <p>25 impacts the raw water. So that needs to be fully</p>	<p style="text-align: right;">44</p> <p>1 already have a system for that.</p> <p>2 Box 3, Submittal of the Construction Permit</p> <p>3 Application for ASR Water Delivery, Aquifer Modeling</p> <p>4 and Pilot Testing.</p> <p>5 And Box 4, the last one, is the ASR Operating</p> <p>6 Permit Application.</p> <p>7 And here you can see, during this seven-step</p> <p>8 process, where you start and where you end. And some</p> <p>9 of the steps can be taken care of contemporaneously.</p> <p>10 And we developed this -- Stephen really wanted this,</p> <p>11 so we did this for him -- just for you to see where</p> <p>12 you go.</p> <p>13 Okay. This is it. So if you have any</p> <p>14 questions, our team is here to entertain them. Thank</p> <p>15 you.</p> <p>16 CHAIRMAN DUANE WINEGARDNER: Are there any</p> <p>17 discussion topics? Any questions?</p> <p>18 We would like to invite the board members to</p> <p>19 come up.</p> <p>20 MR. MARK HILDEBRAND: Duane, this is Mark</p> <p>21 Hildebrand. I've just got one comment, just to let</p> <p>22 everybody know that our rulemaking timeline is going</p> <p>23 to be the exact same as our IPR. So we're planning on</p> <p>24 bringing some draft rules for you all to look at in</p> <p>25 September, and then having our final ones ready for</p>

45	<p>1 you all to vote on in January of '18 just FYI. Thank 2 you.</p> <p>3 MR. BRIAN DUZAN: I do have kind of a 4 question. You had talked about that this would 5 require a separate plant, similar to the drinking 6 water and the waste water. Is that going to be cost 7 prohibitive to -- I mean, you said Wichita does it. 8 But Wichita's a major city. And most of the cities in 9 Oklahoma that have this are kind of Western Oklahoma 10 that -- are they going to have the financial ability 11 to go through this process?</p> <p>12 MR. SABA TAHMASSEBI: Well, this is -- this 13 is not like a cheap solution for everyone. It's not. 14 Like you talk about Wichita, and Wichita is a \$70 15 million capital investment project. And then the 16 thought is that if city planners are planning on 17 bringing in industry, they are planning on growing, 18 they need to have some solutions in their toolbox of 19 what they can do to provide water security. This is 20 something that they can do. It's not for everyone.</p> <p>21 And then the reason it is justified to treat 22 the water prior to its delivery is that Oklahoma has 23 tremendous groundwater resources, very high quality. 24 And we cannot, as a state, we cannot accept a risk of 25 contaminating them. Because, once you do that, then</p>	47	<p>1 know, depending on where you are, they phrase it 2 differently. But, basically, let's stop treating 3 everything to drinking water standards and treat it 4 for the intended use or existing water quality or, you 5 know, some of those kinds of things.</p> <p>6 Obviously, we would not want to do, you know, 7 treating to a marginal quality and inject into a 8 drinking water groundwater use area. But the marginal 9 quality waters, you know, we do have some other 10 options.</p> <p>11 And even on the -- we look at potable reuse. 12 We have all kinds of non-potable reuse options and 13 where we can treat to that purpose, as opposed to 14 having to treat everything to drinking water 15 standards. But I think we're going to see more and 16 more of that as we move forward.</p> <p>17 CHAIRMAN DUANE WINEGARDNER: Thank you. 18 Well, I believe we have a quorum now. So I 19 will call this meeting to order. And it is about 3:10 20 or thereabouts.</p> <p>21 MS. SHELLIE R. CHARD: 3:13. 22 CHAIRMAN DUANE WINEGARDNER: Okay. And this 23 regular meeting of the Water Quality Management 24 Advisory Council was called in accordance with the 25 Open Meeting Act.</p>
46	<p>1 you're stuck with a contaminated aquifer that's going 2 to persist for years.</p> <p>3 So we need to make sure that this water is 4 treated properly and it is delivered properly and 5 everything is done right. So if a community can't 6 afford it, then there are other tools they can look 7 at. I mean, this is not for everyone.</p> <p>8 MR. BRIAN DUZAN: Okay. Thank you. 9 MR. SABA TAHMASSEBI: But then I might also 10 say that this is for drinking water. Right now at the 11 the Blaine Gypsum Aquifer in the southwest corner of 12 Oklahoma a pilot ASR project has been going on since 13 the 1980s. And that aquifer is not used for drinking 14 water, it is used for agricultural purposes.</p> <p>15 So if there is an aquifer that has marginal 16 quality water and then people want to use it for 17 agriculture, then the level of treatment will be 18 different. The idea is to -- not to compromise the 19 quality of the groundwater. So depending on for what 20 use it is, what designated use it is, then the 21 treatment and the costs and everything will differ.</p> <p>22 MS. SHELLIE R. CHARD: And Brian, I would 23 just add to that, it is something that we're starting 24 to see more and more across the country, and that is 25 being, you know, fit for use, treat for purpose. You</p>	48	<p>1 Notice of this April 25th, 2017 meeting was 2 filed with the Secretary of State on October 13th, 3 2016. The Agenda was duly posted at DEQ at least 4 twenty-four hours prior to the meeting.</p> <p>5 Only matter appearing on the posted Agenda 6 may be considered at this regular meeting. In the 7 event that this meeting is continued, reconvened -- or 8 reconvened, public notice of the date, time, and place 9 of the continued meeting will be given by announcement 10 at this meeting. Only matters appearing on the Agenda 11 of a meeting which is continued may be discussed at 12 the continued or reconvened meeting.</p> <p>13 Roll call, please.</p> <p>14 MS. QUIANA FIELDS: Mr. Carr? 15 MR. ROBERT CARR: Here. 16 MS. QUIANA FIELDS: Mr. Duzan? 17 MR. BRIAN DUZAN: Here. 18 MS. QUIANA FIELDS: Mr. Matheson? 19 MR. MARK MATHESON: Here. 20 MS. QUIANA FIELDS: Mr. Nelson? 21 MR. JON NELSON: Finally here. 22 MS. QUIANA FIELDS: Mr. Rodriguez is absent. 23 Mr. Short is absent. 24 Mr. Sowers? 25 MR. STEVE SOWERS: Here.</p>

49	<p>1 MS. QUIANA FIELDS: Ms. Wells? 2 MS. DEBBIE WELLS: Here. 3 MS. QUIANA FIELDS: Ms. Wyatt is absent. 4 Mr. Winegardner? 5 CHAIRMAN DUANE WINEGARDNER: Here. 6 MS. QUIANA FIELDS: We have a quorum. 7 CHAIRMAN DUANE WINEGARDNER: Thank you very 8 much. 9 Okay. Meeting minutes from the January 10th, 10 2017 meeting. Are there any comments, corrections, 11 questions? 12 If not, I will entertain a motion. 13 MR. MARK MATHESON: I'll make a motion to 14 accept them as proposed or written. 15 CHAIRMAN DUANE WINEGARDNER: Thank you. 16 MS. DEBBIE WELLS: I second. 17 MS. QUIANA FIELDS: Mr. Carr? 18 MR. ROBERT CARR: Yes. 19 MS. QUIANA FIELDS: Mr. Duzan? 20 MR. BRIAN DUZAN: Yes. 21 MS. QUIANA FIELDS: Mr. Matheson? 22 MR. MARK MATHESON: Yes. 23 MS. QUIANA FIELDS: Mr. Nelson? 24 MR. JON NELSON: I will have to abstain, as I 25 was not in attendance.</p>	51	<p>1 Richard has been around a long time. So I 2 know you may have seen him or met him, as there have 3 been other rules presented over the years. But he 4 will be the person that you will most likely be 5 interacting with when we are addressing the private 6 sewage, private water, dealing with septage haulers, 7 all of those kinds of programs. And so I wanted to 8 make sure you all had a chance to meet Richard, if you 9 hadn't already. 10 You may have noticed one of our long-time 11 members of the Council is not present today and he was 12 not listed as absent either. And that is Mike Paque. 13 He was confirmed by the Senate this morning, taking a 14 seat on the Environmental Quality Board. So he will 15 be attending some of the Council meetings, he said, 16 just to kind of stay in tune with everything happening 17 and then to be an advocate for this Council with the 18 Board as rulemaking moves through that process. 19 So I was looking. And with Mike vacating his 20 spot today and having a vacant position, the Speaker 21 of the House appointment, and then several of you are 22 currently in expired terms and have not been 23 reappointed, we have six of the 12 positions either 24 vacant or expired. 25 We are working with the Governor's Office and</p>
50	<p>1 MS. QUIANA FIELDS: Mr. Sowers? 2 MR. STEVE SOWERS: Yes. 3 MS. QUIANA FIELDS: Ms. Wells? 4 MS. DEBBIE WELLS: Yes. 5 MS. QUIANA FIELDS: Mr. Winegardner? 6 CHAIRMAN DUANE WINEGARDNER: Yes. 7 MS. QUIANA FIELDS: Motion passed. 8 CHAIRMAN DUANE WINEGARDNER: Thank you very 9 much. 10 Now we have -- the next item on the Agenda is 11 the Director's Report. 12 MS. SHELLIE R. CHARD: Okay. Good Afternoon. 13 So just a couple of housekeeping items for 14 the Council. I would like to introduce -- we have a 15 new Environmental Complaints and Local Services 16 Division Director. Gary Collins retired just a few 17 weeks ago. So Richard McDaniel is here. He's dressed 18 like Mark. So, you know, don't get those confused. 19 They coordinated today. 20 Richard has been with the agency forever. We 21 worked together in southwest Oklahoma. He's been 22 working a lot of the Oklahoma City programs, 23 overseeing several of the field offices, and then some 24 of the programs that he more or less directly 25 implements.</p>	52	<p>1 they have indicated probably in June is when they will 2 do all of their appointments that do not require 3 Senate confirmation. 4 The Speaker of the House, we've been told, 5 yes, we know. So we wait until they provide us with 6 an appointment. 7 And we also are in communication with the 8 Senate Pro Tem to try and have all of our positions 9 filled. And it makes it not quite so stressful when 10 we have a potential of 12 in order to have seven here. 11 So that's something, you know, we're going to be, you 12 know, working with the officials to get appointments 13 made as soon as possible. 14 So, hopefully, by our next meeting, you will 15 have new friends around the table. So we'll see how 16 the process plays out and how quickly. I know some of 17 you have asked what do I do and what does this mean. 18 And you serve until you're notified otherwise. We've 19 had some positions be expired as long as three or four 20 years and then the person be reappointed. So we just 21 kind of keep going. And so, you're still with us 22 until there is something that changes that. 23 So that's going to be something we'll kind of 24 see how things unfold over the next few weeks or few 25 months.</p>

<p style="text-align: right;">53</p> <p>1 We've had several legislative actions this 2 session that have related to water, primarily water 3 reuse arena. One of the bills that is going to be 4 important for oil and gas water reuse, Senate Bill 5 743, that addresses the ownership of the produced 6 water and it also allows for compensation and how that 7 would work when we're dealing with oil and gas 8 exploration and production. 9 We also had a bill, Senate Bill 287, which 10 has gone to the Governor for signature. This allows 11 the Oklahoma Corporation Commission to seek authority 12 to issue NPDES permits for oil and gas exploration and 13 production. Where we see that primarily is with the 14 construction permitting related to oil and gas 15 exploration and production. As it is now, EPA must 16 issue those permits and then DEQ is required to issue 17 the 401 certification that water quality standards are 18 being met. Under this bill, it clears the way for the 19 Corporation Commission to begin the process of issuing 20 those permits and, in which case, they would do the 21 certification. 22 The Department of Agriculture went through 23 that just a few years ago. So Corp Comm would be the 24 last piece of the water -- Waste Water Programs to be 25 delegated to the state.</p>	<p style="text-align: right;">55</p> <p>1 inquiries of the facilities that would like to do some 2 projects. And we're already seeing, as Saba said, 3 some of those in agriculture areas, marginal quality 4 waters. A couple of the Tribes are looking at some 5 projects. And so we want to get the language in so 6 that we can work with some of our cities that are 7 wanting to pursue those projects. 8 So we'll see what happens. I think we have 9 until Friday for that language to get inserted. If 10 not, we'll try again next year. 11 As most of you know, President Trump has been 12 issuing multiple executive orders that affect the 13 environment or EPA regulation. Something, you know, 14 that we're seeing kind of as a mantra for EPA is 15 they're going to have a back-to-the-basics agenda, as 16 opposed to what we've seen in the last few years, 17 which is kind of drinking from a fire hose. As much 18 that could come out was coming out and trying figure 19 out what to do about it. 20 So really, they're looking at three big 21 things as what they're looking at. It's protecting 22 the environment, engaging with partners, whether they 23 be states, businesses, municipalities, stakeholders in 24 general, and then also to come up with sensible 25 regulations for economic growth. So that's kind of</p>
<p style="text-align: right;">54</p> <p>1 We also are looking at bill -- potentially 2 House Bill 1485. That is -- right now is also an oil 3 and gas-related water bill. But we're hoping to have 4 a floor substitute introduced that will allow us to do 5 more design-build construction projects for waste 6 water treatment facilities. We have the language 7 already in the drinking water construction standards, 8 but on the waste water side you had to have a 9 construction permit before you could even go out to 10 bid. This allows for the bidding and everything to 11 occur, then to get construction permits so that we 12 have the ability to phase permits so that you can 13 design, build as you go and get those permits via 14 through a permit amendment or modification, rather 15 than having to do all of that up front. We have that 16 for drinking water, so this is making the waste water 17 side mirror that. 18 Also in that bill allows us to do ASR that 19 you just heard -- talked about today, to do pilot 20 projects. Right now there's nothing that says you 21 can't do it, but there's nothing that gives us the 22 authority to do it either. So this language, if it 23 gets introduced, would allow for pilot projects and 24 allow us to be able to go down that road and get some 25 of those projects started, that we have had some</p>	<p style="text-align: right;">56</p> <p>1 what EPA's focus and what Administrator Pruitt is 2 talking about. 3 Right now we've heard a lot of talk about 4 infrastructure financing. We've seen some positive 5 things happening as far as SRF funding, Brownfield, 6 Superfund. Still what we're seeing, a little scary on 7 the USDA development funding and some of the other 8 funding sources that kind of don't have as much of a 9 banner waving, hello, we do infrastructure. But 10 that's something that we're all working on. 11 We have heard through the grapevine two or 12 three different ways that it looks like we will have a 13 continuing resolution by the end of the week so 14 there's not a federal government shutdown. Who knows 15 how real that is until it happens. They're either 16 going to vote to do it or they're not. So we're 17 hopeful that we're not going to see that shutdown, 18 that we will see a continuing resolution that goes 19 through the end of the federal fiscal year. If it 20 does, that means very little cuts, just going to be 21 off-the-top rescission, which is less than 1 percent 22 for the state Tribal funding grants and for the SRF, 23 the other infrastructure funding. So we'll see what 24 happens. 25 And then there will be the work on what the</p>

<p style="text-align: right;">57</p> <p>1 next budget will look like. And, you know, I think 2 when you see the list of things that the President has 3 proposed that should be zeroed out, you're not likely 4 to see Congress agree that all Great Lakes funding 5 initiative should go to zero. There are too many 6 House and Senate members that that is very important 7 to them. It's unlikely to see the Chesapeake Bay 8 initiative go to zero, because so many of those states 9 and municipalities and industries have spent a lot of 10 money to advance to where they are now. They don't 11 want it to go back.</p> <p>12 I suspect we are likely to see the 13 U.S.-Mexico border initiatives, you know, I just, you 14 know, maybe it's watching the national news, I don't 15 see those getting a lot of funding. We'll see. But 16 it's all – everybody is speculating. And I guess 17 here in a few months we'll figure out who was the best 18 at speculating or if anybody was or if we have another 19 continuing resolution or what we have.</p> <p>20 So I think we don't really know much about 21 the federal budget, but I guess we're going to find 22 out here pretty soon how willing at least they are to 23 compromise for the current federal fiscal year.</p> <p>24 On the state fiscal year budget for next 25 year, we don't know. We've been asked a lot of</p>	<p style="text-align: right;">59</p> <p>1 that is Scott Thompson and his counterparts in other 2 states of the environmental agency directors.</p> <p>3 With all of the attention on lead in drinking 4 water, the Flint, Michigan situation, there is a lot 5 of focus on, you know, knee jerk reactions, what are 6 the big things that, oh, my gosh, there's lead in 7 drinking water, everybody should shift all of their 8 resources to addressing that. Oh, no, there is some 9 other problem, we should shift all of our resources to 10 dealing with that, rather than looking at kind of a 11 bigger picture.</p> <p>12 And one of the things that ECOS has done, you 13 know, we need to look at real measurements and look at 14 what's actually happening not today but over the last 15 five years, ten years, some period of time.</p> <p>16 So one of the projects that Oklahoma DEQ was 17 working on was blood lead levels in children. There 18 was a lot of attention on what cities are monitoring, 19 how often are they monitoring, what ZIP codes are 20 being looked at. We look at childrens' blood lead 21 levels, how does that overlap with the drinking water 22 systems.</p> <p>23 And those of us in this business came to the 24 conclusion pretty quickly that old houses with 25 lead-based paint were, you know, contributing a lot</p>
<p style="text-align: right;">58</p> <p>1 questions. We, you know, answer those questions. 2 What does DEQ do? What's important? What could you 3 cut? How much have you been cut before? How much is 4 every – you know, kind of start looking at all of 5 those budget things.</p> <p>6 Again, you listen to the rumor mill and watch 7 all the news, life as we know it may no longer exist 8 or it may be exactly the same with pretty much no 9 changes. And so I'm guessing reality is somewhere in 10 between.</p> <p>11 But the Legislature does have to pass a 12 budget before they adjourn the last Friday in May, 13 unless the Governor calls a special session, in which 14 case then that would be some time after the second 15 week in June.</p> <p>16 So we're kind of in a wait-and-see mode on 17 the state budget, but that's not that unusual. It's 18 usually some time in May when we actually start seeing 19 real budget numbers and get a feel for what it's 20 actually going to look like. So that will be 21 happening fairly quickly.</p> <p>22 One last thing that I will just share with 23 you. The Water Quality Staff has been working on 24 several national projects through the Environmental 25 Council of States, which is basically an organization</p>	<p style="text-align: right;">60</p> <p>1 more than the drinking water systems. And so when we 2 looked across the country, we found that blood-lead 3 levels in children has been steadily declining since 4 the '70s.</p> <p>5 Every now and then you might see a little bit 6 of a blip, but there is a definite downward trend. 7 But the CDC has been routinely dropping the level that 8 they consider appropriate or acceptable. And they 9 say, you know, it should be zero. So any lead is 10 harmful and it's bad. And when you start seeing 11 different statistics reported, the statistics that 12 they're using, they're comparing against different 13 standards. And so it kind of made it look like there 14 was this huge growing problem of lead levels in 15 children. And what we have found is really we've had 16 a steady decline. And that now that the level has 17 dropped to five, even though the Safe Drinking Water 18 Act standard is ten, it's making things a little bit 19 interesting and you have feuding federal agencies at 20 battle of what standard is correct.</p> <p>21 But even with that, we're seeing the levels 22 well below five. So when the level drops in another 23 year or two to three and a half, I think we still will 24 see a steady decline.</p> <p>25 So that was kind of good news that we were</p>


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1 able to participate in that study and do a lot of work
 2 kind of graphing and mapping out some of those details
 3 and being able to show, you know, what managing water
 4 and waste water really is all about.
 5 So I have thrown a lot of information at you
 6 following a lot of information on Water Reuse. So I
 7 will stop with that and ask if anybody has any
 8 questions or comments.
 9 CHAIRMAN DUANE WINEGARDNER: Do you have a
 10 crystal ball?
 11 MS. SHELLIE R. CHARD: I have a Magic 8 Ball.
 12 Does that count?
 13 CHAIRMAN DUANE WINEGARDNER: That will count.
 14 I think in this time of transition, that's
 15 probably the best. I don't know. I don't know what
 16 to expect.
 17 Are there any questions for Shellie?
 18 Are there any items of New Business which we
 19 need to discuss or hear? Any concerns?
 20 Okay. Well, then the next meeting that we
 21 have will be July 25th at 2:00 o'clock in this room.
 22 And we look forward to seeing you all then.
 23 Is there anything else that needs to be
 24 brought up one last time?
 25 Okay. I will declare this meeting to be

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1 adjourned.
 2 MR. MARK MATHESON: I'll make a motion to
 3 adjourn.
 4 CHAIRMAN DUANE WINEGARDNER: Thank you.
 5 MR. BRIAN DUZAN: Second.
 6 MS. QUIANA FIELDS: Mr. Carr?
 7 MR. ROBERT CARR: Yes.
 8 MS. QUIANA FIELDS: Mr. Duzan?
 9 MR. BRIAN DUZAN: Yes.
 10 MS. QUIANA FIELDS: Mr. Matheson?
 11 MR. MARK MATHESON: Yes.
 12 MS. QUIANA FIELDS: Mr. Nelson?
 13 MR. JON NELSON: Yes.
 14 MS. QUIANA FIELDS: Mr. Sowers?
 15 MR. STEVE SOWERS: Yes.
 16 MS. QUIANA FIELDS: Ms. Wells?
 17 MS. DEBBIE WELLS: Yes.
 18 MS. QUIANA FIELDS: Mr. Winegardner?
 19 CHAIRMAN DUANE WINEGARDNER: Yes.
 20 See, I knew if I raised this thing once I
 21 would get a motion.
 22 ADJOURNMENT - 3 30 P.M.
 23
 24
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1 ** CERTIFICATE **
 2 STATE OF OKLAHOMA)
) SS
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 4
 5 I, Lynette Wrany, a Certified Shorthand Reporter
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 7 certify that I reported all of the foregoing meeting,
 8 and that I later reduced it to typewritten form, as
 9 the same appears herein.
 10 I further certify that I am not a relative of,
 11 nor attorney for, nor clerk or stenographer for any
 12 party to this meeting, and that I am not otherwise
 13 interested in the event of the same.
 14 I further certify that the above and foregoing
 15 typewritten pages contain a full, true and correct
 16 transcript of my stenographic notes so taken, during
 17 said meeting.
 18 WITNESS my hand and seal this the 1st day of May,
 19 2017.
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**WATER QUALITY MANAGEMENT
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April 25, 2017

**Department of Environmental Quality
Oklahoma City, Oklahoma**

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