

2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

DELAWARE RIVER BASIN COMMISSION

TRANSCRIPT OF AUDIO-RECORDED COMMISSION HEARING

DECEMBER 8, 2021

2:30 P.M.

18 CFR PARTS 410 AND 440 IMPORTATIONS OF WATER  
INTO AND EXPORTATIONS OF WATER FROM THE DELAWARE  
RIVER BASIN; DISCHARGES OF WASTEWATER FROM HIGH  
VOLUME HYDRAULIC FRACTURING AND RELATED ACTIVITIES

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

A P P E A R A N C E S

Hearing Officer: Kristen Bowman Kavanagh

Commenters:

Jeff Tittel

Tracy Carluccio

Doug O'Malley

Barbara Arrindell

Matthew Smith

Holly Cox

Sharon Furlong

Craig Stevens

Kathie Westman

Sandra Steingraber

Sahana Rao

Tammy Murphy

Eric Benson

1 MS. BOWMAN KAVANAGH: Good  
2 afternoon. My name is Kristen Bowman Kavanagh  
3 and on behalf of the Delaware River Basin  
4 Commission, welcome to today's public hearing.  
5 I am the deputy executive director for the  
6 DRBC and I will be serving as the Hearing  
7 Officer for this proceeding. As the hearing  
8 officer, my primary role is to ensure that we  
9 conduct an orderly hearing that allows  
10 individuals who wish to do so to provide oral  
11 comments and testimony that will become a part  
12 of the administrative record for the  
13 rulemaking that I will describe shortly. I  
14 would like to thank the public for attending.  
15 This public hearing is being held remotely and  
16 has been advertised as such on the DRBC  
17 website via social media and in federal and  
18 state register publications. Members of the  
19 public may attend the proceedings virtually on  
20 either the Zoom Webinar platform or the DRBC  
21 YouTube channel. However, those who have  
22 registered to speak today may participate only  
23 by joining the Zoom Webinar, which is  
24 interactive. While these types of meetings  
25 and webinars are not new, please allow me to

1 offer a few announcements and reminders for  
2 this public hearing. I will ask for your  
3 patience if I have to pause to address any  
4 technical or procedural issues related to the  
5 remote platforms. When you join a Zoom  
6 webinar as an attendee, you will not have the  
7 same meeting features that you may be used to  
8 with Zoom, meeting, or other similar remote  
9 meeting platforms. Specifically, you do not  
10 initially have camera or microphone access.  
11 If you have registered in advance to speak at  
12 today's hearing, your microphone will be  
13 enabled when it is your turn to provide  
14 comments. The public hearing is also being  
15 broadcast for viewing on DRBC's YouTube  
16 channel. However, if you register to speak,  
17 you must join the Zoom Webinar platform to be  
18 able to participate. You will not be able to  
19 provide oral comment via the YouTube  
20 broadcast. You may also participate by phone  
21 using one of the numbers provided on a DRBC  
22 website. If you have registered to speak, you  
23 are encouraged to use your computer connection  
24 for both audio and video. In any case, please  
25 do not use your phone and computer

1 simultaneously for audio, as this may result  
2 in echoes or other interference. Comments  
3 provided using a chat feature, if available  
4 during the hearing in any platform, will not  
5 become part of the administrative record. The  
6 procedure and a link for submitting written  
7 comments on the record are provided on the  
8 DRBC website. Only oral comments provided  
9 during this or one of the other three hearings  
10 and written comments provided according to the  
11 procedures on the DRBC website will become  
12 part of the administrative record. If you are  
13 providing oral comments today, it is not  
14 necessary for you to also submit written  
15 comments, although you certainly may do so.  
16 The draft rules that are the subject of this  
17 hearing were proposed by the Delaware River  
18 Basin Commission to amend the Commission's  
19 Water Code, Special Regulations and Water  
20 Quality Regulations regarding the importation  
21 and exportation of water and wastewater into  
22 and from the Delaware River Basin and the  
23 discharge of wastewater from high volume  
24 hydraulic fracturing or HVHF. A notice of  
25 proposed rulemaking, along with text of the

1 draft rules and supporting documents were  
2 posted on the DRBC website on October 28, 2021  
3 and have been published in the Federal  
4 Register and Basin State registers.  
5 Information about the draft rules and the  
6 public process will remain available on the  
7 Commission's website throughout the process.  
8 As part of this rulemaking, the Commission is  
9 in the process of having the key rulemaking  
10 documents translated into Spanish. These  
11 include the notice of proposed rulemaking and  
12 public hearing and the text of the proposed  
13 amendments for each of the three affected  
14 components of the Commission's regulations.  
15 To request the translation of these documents  
16 into a language other than Spanish, you may  
17 e-mail a request to [translate@DRBC.gov](mailto:translate@DRBC.gov).  
18 Translation requests will be considered on a  
19 case by case basis. In addition, to translate  
20 DRBC web pages to any of multiple languages,  
21 please use the Google translation widget  
22 located in the upper right of each web page.  
23 In accordance with the Commissioners February  
24 25th, 2021 Resolution and directive, the  
25 Commission is proposing amendments to its

1 comprehensive plan and regulations to better  
2 provide for the planning, conservation,  
3 utilization, development, management and  
4 control of the basin's water resources in  
5 connection with the importation of water,  
6 including wastewater into the basin, the  
7 expectation of water, including wastewater  
8 from the basin and the discharge of wastewater  
9 from HVHF and HVHF related activities. The  
10 Commission proposes to amend the water code by  
11 clarifying the circumstances in which  
12 exportations of water, including wastewater  
13 from the basin and importations of water  
14 including wastewater into the basin are  
15 considered by the Commission and the factors  
16 to be used in evaluating whether such proposed  
17 imports and exports of water may be approved.

18         The proposed amendments will not apply to  
19 importations and exportations that existed  
20 prior to the effective date of any final  
21 rules, but are proposed to apply to increases  
22 in the rate or volume of existing importations  
23 and exportations. The Commission also  
24 proposes to amend its special regulations  
25 regarding HVHF by the addition of a finding

1 that the discharge of wastewater from HVHF and  
2 HVHF related activities poses significant,  
3 immediate and long-term risks to the  
4 development, conservation, utilization,  
5 management and preservation of the basin's  
6 water resources and that controlling future  
7 pollution, by prohibiting such discharge is  
8 required to effectuate a comprehensive plan,  
9 avoid injury to the waters of the basin as  
10 contemplated by the comprehensive plan and  
11 protect the health and preserve the waters of  
12 the basin for uses in accordance with the  
13 comprehensive plan. The finding is  
14 accompanied by a provision prohibiting the  
15 discharge to waters or land of the basin of  
16 treated or untreated wastewater from HVHF and  
17 HVHF related activities. Copies of the  
18 proposed rules can be found on the DRBC  
19 website.

20 This is one of four public hearings  
21 scheduled on this matter. In addition to  
22 accepting oral comments at these public  
23 hearings, the Commission is accepting written  
24 comments through 5:00 PM Eastern Time on  
25 Friday, February 28, 2022. Written comments



1 will receive the same consideration as oral  
2 comments. Written comments can be submitted  
3 online using a link that is posted on the DRBC  
4 website. If you do not have access to a  
5 computer or the internet and you would like to  
6 submit written comments, you may request an  
7 exception by writing to the DRBC as follows:  
8 Attention: Commission Secretary DRBC, PO Box  
9 7360, West Trenton, NJ 08628.

10 Today's proceedings are being recorded  
11 and a transcript will be created that will  
12 become a part of the decision-making record  
13 for the proposed rules. The recordings are  
14 being made to enable the DRBC commissioners to  
15 see and hear your comments. Even though they  
16 cannot attend the hearings and to allow the  
17 DRBC staff in consultation with the  
18 Commissioners to prepare a detailed comment  
19 and response document that addresses the  
20 issues and concerns you raise. I will now  
21 describe how the hearing will proceed.

22 First, the Commission thanks all of you  
23 have registered in advance to speak today.  
24 You're doing so has helped the staff to  
25 prepare for these proceedings. If you have

1 not yet registered and wish to speak at a  
2 future public hearing on December 15th of  
3 2021, please do so using the link on DRBC's  
4 website. Registrations for the two hearings  
5 on that day will be accepted until 5:00 PM  
6 Eastern Time on December 14th, 2021. When I  
7 call your name from the list of registered  
8 speakers, we will attempt to find your name in  
9 the list of Zoom webinar attendees. If we  
10 cannot find you quickly, you can help out by  
11 using the raised hand feature, which is  
12 typically located at -- located at the center  
13 bottom of the screen. If you are using a  
14 phone to call into the hearing, we may only be  
15 seeing a phone number rather than a name. If  
16 we call your name, press star 9 to raise your  
17 hand. You may need to unmute on your end of  
18 the connection as well and you can test the  
19 audio before beginning. You should plan on  
20 limiting your comments to about three minutes.  
21 Once you exceed the permitted time, the timer  
22 screen will turn red and I will likely ask you  
23 to wrap up your comments. Please remember,  
24 you will have the opportunity to follow up in  
25 writing, if you wish. Speakers are asked to

1 state their name and affiliation if any, and  
2 to direct all comments to the hearing officer.  
3 Please offer your comments in a respectful  
4 manner. As the hearing officer, I reserve the  
5 right to decide if your presentation is not  
6 consistent with the purpose of this hearing  
7 and as such, I can end your ability to provide  
8 comments at anytime with or without warning,  
9 depending upon the circumstances. If as a  
10 part of your comment you ask a question,  
11 please do not expect a response during the  
12 hearing. Questions and comments will be  
13 addressed as part of the comment and response  
14 document that will be prepared by the  
15 Commission after the document -- pardon me.  
16 After the comment period has closed. A list  
17 of frequently asked questions concerning this  
18 rulemaking has been posted on the DRBC website  
19 as well.

20 This hearing will end once all the  
21 speakers who have registered in advance have  
22 had the opportunity to provide comments.  
23 Again, if you have not registered and would  
24 like to speak at a future hearing on December  
25 15th of 2021, please register using the link

1 provided on the DRBC website.

2           What happens next? After all, public  
3 input is received, the DRBC staff and  
4 commissioners will develop a comment and  
5 response document that addresses the concerns  
6 raised during the public process. The  
7 Commissioners will consider changes to the  
8 proposed rule in response to the comments  
9 received and will either act at a public  
10 meeting to approve the rules as proposed,  
11 approve the rules with changes or reject the  
12 proposed rules. Alternatively, the  
13 Commissioners may commence a separate  
14 rulemaking to consider substantially different  
15 rule changes. The decision makers on this and  
16 all rulemakings by the Commission are the  
17 Commissioners themselves who may act through  
18 their appointed alternates. The Commissioners  
19 are the governors of the four basin states,  
20 Delaware, New Jersey, New York and  
21 Pennsylvania, and on behalf of the federal  
22 government, the division commander of the  
23 North Atlantic Division of the US Army Corps  
24 of Engineers.

25           I will now share my screen to show the

1 three minute countdown timer and proceed to  
2 invite those who have registered in advance to  
3 provide their comments. It will be just a  
4 moment while I take care of this.

5 Our first speaker at this public hearing  
6 will be Jeff Tittel and following Jeff will be  
7 Tracy Carluccio. I will try to remember to  
8 give a heads-up to the next several speakers.  
9 I will also note for the record that we  
10 currently have 39 participants on this Zoom  
11 webinar. As well as, I believe one  
12 participant on the streaming YouTube channel.

13 So Jeff, thank you very much for raising  
14 your hand. I appreciate that. I will allow  
15 you to talk and please remember to introduce  
16 yourself and your affiliation, if any, and I  
17 will start the timer after you do a sound  
18 check.

19 MR. TITTEL: Hi, it's Jeff  
20 Tittel.

21 MS. BOWMAN KAVANAGH: Great. I  
22 can hear you just fine.

23 MR. TITTEL: Okay. Thanks. I'm  
24 here today to say that it was a great movement  
25 forward in banning fracking in the basin.

1 However, the work is not done if we allow for  
2 the importation of fracking waste to be  
3 processed or fracking waste to be stored or to  
4 be -- to go into systems that evaporated or  
5 reuse it, we have not done the job we have  
6 needed to do to protect the basin, and that's  
7 why we're here today. When we read the  
8 definitions and you look at the rules, the  
9 importation of fracking waste into the basin,  
10 even though you can't directly discharge it,  
11 it could still have tremendous impacts when it  
12 comes to the environment and public health in  
13 the basin. One, through trucking it in or  
14 bringing it in by rail, the chance of accident  
15 or spill. Facilities like storage tanks that,  
16 you know, could leak. Process of trying to  
17 clean it and ship it back out, which could  
18 happen. The chances of a spill or an accident  
19 in one of those facilities. We've had in the  
20 basins places like the Elkhorn Thermal  
21 oxidation project that was stopped in Falls  
22 Township. That could come back and that would  
23 put it up into the air or synagro where they  
24 were going to do thermal drying or just waste  
25 water type of evaporation systems, and the

1 concern we have is that once things go up into  
2 the air, they come back down. It's called air  
3 deposition and then it ends up on the land.  
4 It ends up in the air and running off some  
5 storm water into our streams or soaking into  
6 the land and getting into the aquifer, ad so  
7 this is playing Russian roulette with  
8 wastewater that we don't need to do. Another  
9 concern we have is that there's a whole  
10 concept of using it for cooling from a power  
11 plant or for a factory or mill or refinery,  
12 and, again, you would get something called  
13 chemical drift where the water evaporates.  
14 Goes up in the air and then comes back down,  
15 you know, with an inversion or again and then  
16 runs off into the land, and then the other  
17 concern we have, it could be used in  
18 industrial processes like mixing cement or  
19 making bricks or other things. So we don't  
20 believe that we should allow this to come into  
21 the basin. We said no to ban fracking waste  
22 in the basin and this is not banning. This is  
23 not banning fracking waste. This is a  
24 loophole big enough to drive trucks or even  
25 water of a wastewater pipeline through. We

1 need to make sure that we protect this basin  
2 from fracking, all forms, whether it's taking  
3 water out of the basin for fracking or  
4 bringing in wastewater, it's a witches brew of  
5 chemicals. It's unregulated, you know, it's  
6 exempted from REPRRA and, therefore, it could  
7 be a disaster waiting to happen. Please do  
8 not allow this to happen in our basin and we  
9 are urging you to finish your job. You said  
10 no wastewater in the basin. This means no  
11 wastewater we shouldn't be allowed to  
12 discharge it, but we shouldn't be allowed to  
13 reuse it either. Well, all I can say to the  
14 DRBC is what part of no don't you get? The  
15 Delaware River Basin -- the DRBC should stand  
16 for Don't Ruin the Basin Commission. Stop  
17 this stupidity. Thank you.

18 MS. BOWMAN KAVANAGH: Pardon me.  
19 I think I was talking to myself for a moment  
20 there. My apologies. Thank you for your  
21 comments. Our next commenter is Tracy  
22 Carluccio, followed by Eric Benson and Doug  
23 O'Malley. Tracy, I saw that you're here.  
24 Give me a moment to find you again and reset  
25 the clock. I will now allow you to speak,



1 Tracy, if you want to go ahead and do a sound  
2 check.

3 MS. CARLUCCIO: Can you hear me,  
4 Kristen?

5 MS. BOWMAN KAVANAGH: I can.  
6 Thank you.

7 MS. CARLUCCIO: Thank you.  
8 Tracy Carluccio, deputy director of Delaware  
9 Riverkeeper Network. The draft regulations  
10 proposed to prohibit the discharge of fracking  
11 wastewater to water or land, which is a  
12 crucial protection we need, but the  
13 regulations do not prohibit the import of  
14 wastewater produced by fracking, which will  
15 green light fracking related projects that  
16 don't strictly discharge to water or land, and  
17 that's a huge loophole. That would allow  
18 fracking wastewater to enter the watershed and  
19 cause pollution through other means of  
20 release. These other means include, but are  
21 not limited to, wastewater processing,  
22 employing evaporation, thermal oxidation, and  
23 other so-called zero discharge treatment  
24 methods that would release emissions, but  
25 don't discharge directly to water or land.

1 There was also no proposed prohibition on the  
2 reuse of this waste water for cooling water  
3 and manufacturing or by utilities or  
4 constructions such as cement making, nor on  
5 fracking wastewater storage. These activities  
6 will deliver fracking pollution through air  
7 emissions that deposit on water, soil,  
8 vegetation, fish, and aquatic life. This air  
9 pathway of pollution will cause the toxic and  
10 radioactive properties of fracking wastewater  
11 to pollute the Delaware River watershed and  
12 our communities and in addition to air  
13 deposition, any operation that treats uses,  
14 stores or transfers fracking wastewater, can  
15 release indirect storm water pollution and  
16 also cause groundwater contamination. The  
17 required transportation of this waste into and  
18 around the watershed, whether over land, on  
19 water or by pipeline exposes the watershed  
20 environment and communities to the spills and  
21 accidents that gravely endanger water quality,  
22 habitats and human and nonhuman communities.  
23 There's no way around the affect of these  
24 proposed regulations. The proposed ban on  
25 discharge to water or land is an absolute

1 necessity that Delaware Riverkeeper Network  
2 fully supports. However, the ways that  
3 fracking wastewater will inevitably pollute  
4 our watershed because they have entered  
5 through loopholes have the power to destroy  
6 the qualities the Commission seeks to protect  
7 through its discharge ban. These draft  
8 regulations will undo clean water and healthy  
9 community goals and deprive the public,  
10 including future generations of what we need.  
11 The Delaware Riverkeeper Network's mission is  
12 to defend the Delaware from just this kind of  
13 threat. We oppose the regulations the  
14 Commission has proposed. The most  
15 environmentally effective and economically  
16 sound regulatory action is to fully and  
17 categorically ban the export of water from the  
18 watershed for fracking, which would induce  
19 more destruction and human health harm by  
20 fracking elsewhere and ban the import of  
21 fracking wastewater so that the processing,  
22 storage, use, reuse and transfer of wastewater  
23 produced by all fracking activities will be  
24 prohibited preventing pollution. Thank you.

25 MS. BOWMAN KAVANAGH: Thank you

1 for your comments. Next on the list of  
2 registered speakers is Eric Benson. I don't  
3 see you. If you are here and I'm just not  
4 seeing you, kindly use the raise hand feature  
5 in the bottom center of your screen. I'll  
6 give you a moment to do that if you are here.  
7 Next stop after Eric will be Doug O'Malley and  
8 then Barbara Arrindell and then Matthew Smith.  
9 I don't believe Eric Benson is with us, so I  
10 will move on to Doug O'Malley.

11 Doug, I will allow you to talk if you  
12 want to do a sound check and then introduce  
13 yourself by name and affiliation, if any,  
14 while I reset the clock. Thank you.

15 MR. O'MALLEY: Super. Can you  
16 can you hear me?

17 MS. BOWMAN KAVANAGH: I can.  
18 That's great. Here you go.

19 MR. O'MALLEY: Okay. Super. So  
20 let me just start off by saying my name is  
21 Doug O'Malley, director of Environment New  
22 Jersey. We're here because, you know, this  
23 should be the moment that we're having the  
24 biggest victory since blocking the Tocks  
25 Island Dam. This morning Director Tambini

1 discussed that victory as this is the 60th  
2 anniversary of DRBC. The problem, of course,  
3 is that, you know, in February, the news of  
4 the permanent ban on fracking was also coupled  
5 with these promised regulations and,  
6 unfortunately, these regulations do not go far  
7 enough because after 10 years of de facto  
8 moratorium on not just drilling, but really  
9 any fracking related activities in the  
10 watershed, these regulations open up -- open  
11 up the door to the fracking industry to walk  
12 right in to the Delaware River watershed and  
13 to engage in fracking related activities and  
14 that obviously is not what the public called  
15 for. More than 100,000 members of the public  
16 weighed in on this process more than three  
17 years ago calling for a full ban, and the  
18 proposed draft regulations in late October, of  
19 course, do ban the discharge of wastewater  
20 produced by fracking, but not the import of  
21 this toxic wastewater into our watershed, and,  
22 ultimately, this wastewater is the Achilles  
23 heel of the industry. There's no good way to  
24 dispose of this toxic brew of chemicals and  
25 the industry's initial solution of waste pits

1 has now evolved into the involved previously  
2 into direct discharge from wastewater  
3 treatment facilities, then to discharge into  
4 deicing fluids and even the direct injection  
5 into underground and that's created a fracking  
6 injection well wasteland in southeastern Ohio.  
7 To state the obvious, it's a lot closer to the  
8 Delaware River watershed if you're in the  
9 Susquehanna than it is your truck wastewater  
10 to Ohio and the pressure is on because the  
11 industry is looking for places to dump its  
12 wastewater. We've seen a, you know,  
13 increasing volumes of wastewater produced by  
14 each fracking well. Up to 3,000,000 gallons  
15 of wastewater are produced per well and that's  
16 increasing the volumes up to four times even  
17 just a few years ago. So we have a glut of  
18 wastewater in the region. We have the  
19 industry I in the Delaware River Basin and  
20 these draft regulations as opposed to, you  
21 know, closing the door, open it because,  
22 again, the regulations allow wastewater  
23 produced by fracking to be imported into the  
24 watershed and the discharges is prohibited,  
25 but there are other ways around this. The

1 wastewater could obviously be repurposed into  
2 a euphemism of beneficial reuse. These  
3 loopholes need to be closed in the draft  
4 regulations. There needs to be an outright  
5 ban on all fracking related activities, as  
6 well as the export of water outside of the  
7 watershed. There is currently a gaping hole  
8 in these regulations that need to be closed  
9 and we strongly urge the DRBC to finish the  
10 job and to make sure that there's an outright  
11 ban on all fracking activities, including  
12 wastewater in the watershed. Thank you.

13 MS. BOWMAN KAVANAGH: Thank you  
14 for your comments. The next registered  
15 speaker is Barbara Arrindell, following  
16 William Matthew Smith, Rachel Davis and then  
17 Sally Gehlert. Thank you for raising your  
18 hand, Barbara. I will now allow you to talk,  
19 kindly do a sound check while I reset the  
20 timer.

21 MS. ARRINDELL: Can you hear me?

22 MS. BOWMAN KAVANAGH: I can.  
23 Thank you very much.

24 MS. ARRINDELL: Okay. Good.  
25 Barbara Arrindell, director of Damascus

1 Citizens for Sustainability. About the  
2 hazards related to storage of wastewater  
3 produced by fracking, which may be allowed by  
4 the DRBC's draft regulations and which can  
5 deeply harm the Delaware Basin. Written  
6 comments will follow. There are definitions  
7 in the draft regulations. Disposal is  
8 defined, but import is not. Disposal is also  
9 specifically prohibited. Import is allowed.  
10 The gas and oil industry has known about the  
11 toxicity and cancer causing effects of the  
12 waste for many decades. A 1950 Shell  
13 development company paper titled Certain  
14 Problems of Environmental Contaminants in the  
15 Petroleum Industry is very thorough and  
16 damning, but the industry ignored the warning,  
17 both in relation to workers, communities and  
18 downstream. We are now understanding even  
19 more fully how toxic this waste is. The  
20 injected chemicals in the fracking fluids and  
21 released materials from the formation layers  
22 include, among much more, toxic surfactants  
23 and biocides, heavy metals, and high  
24 radioactivity. In the early 1970s, many  
25 protective environmental laws were passed,



1 then the oil and gas industry immediately  
2 dived in. By the early 1980s has gotten its  
3 waste removed from the requirement to be  
4 tracked, cradle to grave and disposed of  
5 properly by relabeling its waste "special."  
6 Unfortunately, this is still in effect today.  
7 More exemptions to careful oversight were  
8 added in the Cheney Bush 2005 Energy Policy  
9 Act. Additionally, it is important to point  
10 out that without DRBC banning the import of  
11 this waste to the Delaware Basin, the  
12 regulation of storage facilities lies with the  
13 states. In Pennsylvania general permit  
14 WMGR123 issued this year with an expiration  
15 date of 2031 allows storage that they called  
16 temporary, but can be for years and even for  
17 the length of the permit. Unless storage of  
18 the waste is banned by banning its import to  
19 the Delaware Basin, the tanks it has put in  
20 will corrode and leak. The surface  
21 impoundments lined with plastic will leak.  
22 The trucks or pipes bringing in the waste will  
23 leak. Spill be deliberately dumped, all  
24 causing lasting contamination. No entity will  
25 be monitoring emissions either. The chemicals

1 and radiation in the waste and health effects  
2 known even in 1950, are being proposed to be  
3 imported, transferred, processed. Will  
4 communities have control or say about  
5 facilities? Remember, the DRBC does not have  
6 any enforcement capabilities and these  
7 materials have been shown to be persistent in  
8 the environment capable of causing harm over a  
9 long time. There is no earthly reason to  
10 import poisons into the Delaware Basin just to  
11 make a convenient industry disposal area for  
12 their waste. It is the DRBC's responsibility  
13 to safeguard the watersheds irreplaceable  
14 water and the only way to do this is to  
15 completely ban the imported waste. Thank you.

16 MS. BOWMAN KAVANAGH: Thank you  
17 for your comments. Our next commenter will be  
18 Matthew Smith. Following Matthew will be  
19 Rachel Davis, Sally Gehlert and then Edith  
20 Kantrowitz.

21 Matthew, I will allow you to talk. You  
22 may have to unmute on your end if you want  
23 into a sound check.

24 MR. SMITH: Can you hear me?

25 MS. BOWMAN KAVANAGH: I can.

1 Thank you. Go ahead. Thank you.

2 MR. SMITH: Thank you, and yeah,  
3 to start, my name is Matt Smith. I'm the New  
4 Jersey director for Food and Water Watch  
5 speaking on behalf of our 73,000 members and  
6 supporters, many of whom live in and rely on  
7 the Delaware watershed and Delaware Basin for  
8 clean drinking water.

9 It's very clear that the proposed  
10 regulations are incomplete and unacceptable  
11 and that only a complete ban to eliminate any  
12 loopholes that would allow for fracking waste  
13 to be brought in and stored in the watershed  
14 or water to be withdrawn from the watershed  
15 for fracking operations would only spell  
16 disaster for this irreplaceable source of  
17 drinking water for millions in the region.  
18 Fracking fluid injections, as we know, are  
19 exempt from the rules of the Safe Drinking  
20 Water Act and companies can withhold the  
21 identity of chemicals used to frack a well  
22 because they are trade secrets. Of the known  
23 chemicals, 14 are known or possible human  
24 carcinogens and many are linked to  
25 developmental health and reproductive

1 problems. In addition to the original fluids  
2 that are pumped underground, drilling and  
3 fracking brings naturally occurring  
4 contaminants like brines and radioactive  
5 material from underground to the surface inn  
6 the produced wastewater and the precise  
7 constituents of the wastewater vary depending  
8 on the geology of the extraction site, but it  
9 can contain salts, chlorides, bromides and  
10 sulfides, as well as barium, manganese, iron  
11 and strontium, oil, grease and dissolved  
12 organics like benzene and toluene and  
13 radioactive material, in particular radium  
14 226. These chemicals can cause cancer,  
15 disrupt the endocrine system, affect the  
16 nervous, immune and cardiovascular systems,  
17 and defense sensory organisms and the  
18 respiratory system. There are simply no safe  
19 ways to store or dispose or manage fracking  
20 wastewater. In California, as you know, was  
21 alluded to a previous speaker where the  
22 industry is starved for new ways to dispose of  
23 its toxic waste, they're actually injecting  
24 oil wastewater directly into aquifers. In  
25 Pennsylvania sewage treatment plants that are

1 supposed to treat local municipal wastewater  
2 have been used to treat fracking waste and  
3 they have been ineffective and heavy metals,  
4 radionuclides, salts and other fracking waste  
5 contaminants have passed through the process.  
6 The salt from wastewater has also been used  
7 for deicing wintry roads. None of these  
8 so-called solutions for fracking waste are  
9 acceptable, particularly not in the sensitive  
10 Delaware watershed. It is why I'm echoing the  
11 comments of all my previous -- all my  
12 colleagues who spoke before me and on behalf  
13 of our members in the watershed and who rely  
14 on the watershed that the DRBC fix these  
15 regulations to eliminate loopholes and  
16 completely ban all forms of transport, storage  
17 and disposal of fracking waste, as well as all  
18 water withdrawals from the Delaware for  
19 fracking operations.

20 MS. BOWMAN KAVANAGH: Thank you  
21 for your comments. Our next three speakers  
22 are Rachel Davis, Sally Gehlert and Edith  
23 Kantrowitz. I don't see any of these three on  
24 the list of attendees. If you are present and  
25 I'm just overseeing -- overlooking your name,

1 kindly raise your hand. That feature should  
2 be on the bottom middle of your screen. I'll  
3 give you a second. If I don't see a raised  
4 hand, I will move on and at the end of all the  
5 registered speakers, I'll come back to pick up  
6 anyone who was not present before, so next --  
7 I don't see anyone raising their hand. So  
8 next will be Holly Cox. I do believe I saw  
9 Holly here. Holly, I will now allow you to  
10 talk. Kindly do a sound check and then you  
11 may start.

12 MS. COX: Great. Can you hear  
13 me?

14 MS. BOWMAN KAVANAGH: I can.  
15 Thank you.

16 MS. COX: Fantastic. Hi.  
17 Thanks for these public comment sessions. My  
18 name is Holly Cox from New Jersey. I got  
19 involved in speaking out for the environment  
20 in 2017 when I learned of the United Nations  
21 report stating we had 12 years to lower our  
22 emissions to keep our planet habitable. At  
23 this point in my life, I know how fast a  
24 decade can go by and I was horrified at the  
25 lack of government action by world leaders.

1 Four years later shockingly, nothing  
2 substantial has changed and now we have less  
3 than 10 years to make drastic changes if we  
4 want to keep our earth habitable. We're in a  
5 climate emergency now. Evidence is all around  
6 us that we need to transition off fossil  
7 fuels, global emissions, heat waves and heat  
8 domes, arctic ice melting, out of control,  
9 wildfires, stronger, super storms, like Sandy  
10 and Ida, leading to catastrophic flooding and  
11 billions of dollars worth of damage. Category  
12 four Hurricane Laura, which recently  
13 devastated Louisiana was made even worse by  
14 the fossil fuel plants located there, which  
15 caught fire, leaked chemicals and spewed dark  
16 smoke. Deforestation causing parts of the  
17 Amazon to now be net producers of carbon  
18 dioxide, not absorbers, ocean acidification,  
19 plastic pollution, habitat destruction, bird,  
20 insect and bee populations rapidly declining,  
21 endangered species at an all time high,  
22 biodiversity loss occurring on a massive  
23 scale. We have lost 68% of wildlife since the  
24 1970s. Scientists agree the fossil fuels are  
25 killing our planet causing it to irreversibly

1 warm and leading to the sixth mass extinction.  
2 Our planet is on the brink of irreversible  
3 tipping points. It is against this background  
4 that I come to urge you, DRBC, can stand up  
5 and not allow your fracking ban to be  
6 undermined by loopholes that allow the import  
7 of fracking's toxic and radioactive wastewater  
8 into the Delaware River watershed where it  
9 could be released into the air directly or  
10 into the environment indirectly.

11 As currently drafted, the regulations  
12 do not prohibit frack wastewater, processing,  
13 storage or disposal, thus allowing wastewater  
14 produced by fracking to be transported,  
15 imported and handled in the Delaware River  
16 Basin. This leaves a gaping hole in your  
17 regulations and undermines the intent of your  
18 February vote banning fracking. Please revise  
19 your regulations so wastewater produced by  
20 fracking is completely and categorically  
21 banned. This means a complete ban on the  
22 import, processing, discharge, reused in, or  
23 disposal of wastewater produced by fracking.  
24 Fracking damages the public health and the  
25 environment and also increases the emissions



1 of the powerful greenhouse gas methane. DRBC  
2 should not be taking action that props up the  
3 drilling industry and increases greenhouse gas  
4 emissions, especially at a time when  
5 scientists and global leaders are warning that  
6 we must reduce our greenhouse gases by 50% by  
7 2030 to fight the climate crisis. We need  
8 leaders to stand up and refuse to enable  
9 fracking polluters and their hazardous waste  
10 products. Leaders who are willing to do the  
11 hard work to say no to fossil fuel polluters  
12 and lead us in transitioning to clean energy  
13 and keep our planet habitable. I call on you,  
14 DRBC, to take action to protect the Delaware  
15 River Basin, which I believe is your job,  
16 against the dangerous and toxic effects of  
17 fracking and on a larger scale to take action  
18 to keep our planet habitable. Thank you very  
19 much.

20 MS. BOWMAN KAVANAGH: Thank you  
21 for your comments. Our next speaker is Sharon  
22 Furlong. Sharon, I do see your name in two  
23 instances. Oh, maybe just one. Oh, great.  
24 You raised your hand. That helps me know  
25 which one to pick. Thank you. So Sharon, I

1 will allow you to talk and you can do a sound  
2 check while I reset the timer.

3 MS. FURLONG: Sharon -- ut-oh.  
4 There's a second one over here.

5 MS. BOWMAN KAVANAGH: If you  
6 turn that off, that echo should go away. I'll  
7 give a moment for you to see if you can adjust  
8 that. It looked like you were logged in  
9 twice, Sharon, so if you log out of the other  
10 device and go back to the one you were just  
11 attempting to speak on, that will work or if I  
12 don't hear from you in a few seconds, I will  
13 try your other entry in terms of allowing you  
14 to speak. Okay, so Sharon, what I'm going to  
15 do is remove permission to talk from that  
16 log-in and I will try it through your other  
17 entry if I can tell the difference between the  
18 two. Sorry. Thank you all for your patience.  
19 The names are jumping around a little bit  
20 here. Sharon, I'm going to try what I think  
21 is your other entry to allow you to talk. Do  
22 you want to try again?

23 MS. FURLONG: How's this? I  
24 closed the other one off. I don't know.

25 MS. BOWMAN KAVANAGH: It's still

1 echoey.

2 MS. FURLONG: Yeah.

3 MS. BOWMAN KAVANAGH: What I'd  
4 like to do is continue on so you have some  
5 time to see if you can fix this on your end.  
6 It could require that you completely log out  
7 and come back in. I will come back to you as  
8 long as I see your name on the list.

9 MS. FURLONG: Okay. All right.

10 MS. BOWMAN KAVANAGH: So after  
11 Sharon we have Craig Stevens and then Richard  
12 Cole and then Kathie Westman. I believe I saw  
13 Craig Stevens here. Oh, thank you for raising  
14 your hand. I will now allow you to talk. How  
15 about a sound check and then I'll start the  
16 timer.

17 MR. STEVENS: Hi, Kristen. Is  
18 that okay? And do we have video or just  
19 audio?

20 MS. BOWMAN KAVANAGH: Just  
21 audio. Thank you. Yes, and I can hear you  
22 just fine.

23 MR. STEVENS: Great, thank you  
24 very much. Craig Stevens, sixth generation  
25 landowner, Silver Lake Township, Pennsylvania.

1 I started Patriots From the Oil and Gas Shales  
2 10 years ago watching what was going on. I  
3 live 15 miles from Dimock, Pennsylvania. I  
4 can't show you the contaminated water that  
5 we've had for years from fracking here since  
6 2007. They've destroyed water tables. The  
7 Attorney General of Pennsylvania actually  
8 filed nine felonies and six misdemeanors  
9 against Cabot Oil and Gas for poisoning entire  
10 community's water. Why am I bringing that up?  
11 Because you frack you have flow back, which is  
12 highly radioactive and poisonous. Matter of  
13 fact, when they drill for gas, they look for  
14 the most radioactive part of the ground to  
15 drill into to get the gas, so we'd like DRBC  
16 not to stand for Don't Ruin Big Corporations.  
17 We'd like them to stand for Do Right By the  
18 Citizens. We've caught companies here trying  
19 to get rid of this waste by opening manhole  
20 covers, dumping multi truckloads at 5,000  
21 gallons each into sewer systems that actually  
22 kill the sewer plants. I know the director of  
23 our local sewer plant and they found that out.  
24 That's how they were doing it. There are -- a  
25 lot of states are not allowing the waste to be

1 hauled anywhere anymore. Used to go out to  
2 New Mexico and other places. They're trying  
3 to do injection wells in Pennsylvania. We  
4 have very few of them. They're trying to add  
5 dozens. We're refusing to allow them to  
6 inject this into the ground. Our focus is  
7 keep it clean. The Susquehanna River has been  
8 poisoned for the last 14 years that fracking  
9 and its extraction has been going on here.  
10 That provides half the water to the Chesapeake  
11 Bay. Please DRBC, learn from what's happening  
12 in the Susquehanna River Basin, which has been  
13 allowed to be destroyed by this industry. No  
14 withdrawals of water. They do that even  
15 during droughts here. No transportation.  
16 Nothing they do works right. When they tried  
17 to put a pipeline in my backyard, they blew up  
18 the creek eight times. The mud trucks drove  
19 away, flipped over, killed my neighbor.  
20 Compressed natural gas trucks, which comes  
21 from this same thing. They've had eight  
22 crashes, three drivers have died. We're not  
23 interested in the Delaware River Basin. They  
24 need to learn from us. We're not very far  
25 from you. I live about 90 minutes drive from

1 the DRBC from the Delaware River and beautiful  
2 Callicoon and other areas. 17 million people  
3 live downstream that require water. This  
4 slurry that comes out when they drill is so  
5 poison and toxic that it could very easily  
6 poison the water for everybody downstream very  
7 easily with one large spill. It could turn  
8 off the intakes for Philadelphia, Newark, NJ  
9 and other areas, NYC. Please learn from us.  
10 If you need to, come and see what's happening  
11 here in Northeastern Pennsylvania. I've been  
12 giving tours for 10 years now. That's why  
13 they didn't frack in New York. They came and  
14 saw what's happening in Pennsylvania.

15 So DRBC, from a sixth generation  
16 landowner in Pennsylvania, we basically beg  
17 you not to let anything happen in your area  
18 that could cause the beautiful Delaware River  
19 to be spoiled. Thank you very much for the  
20 time.

21 MS. BOWMAN KAVANAGH: Thank you  
22 for your comments. Our next speaker is  
23 Richard Cole, followed by Kathie Westman and  
24 Sandra Steingraber. I don't believe I saw  
25 Richard Cole, but I will check one more time

1 and if I am just missing your name on the  
2 list, kindly raise your hand. Seeing no hand  
3 raised, I will proceed to Kathie Westman.  
4 Well, thank you Kathie. I will allow you to  
5 talk. Go ahead and do a sound check while I  
6 reset the timer.

7 MS. WESTMAN: My name is Kathie  
8 Westman from Gibsonia, PA 15044. I am  
9 speaking today as a concerned citizen, person  
10 of faith and registered nurse. I am appalled  
11 that knowing the many negative health and  
12 environmental effects of fracking, we are  
13 still having these discussions and hearings.  
14 Two points I would like to stress. One is  
15 that there is no safe disposal of fracking  
16 waste. We know Marcellus Shale is highly  
17 radioactive. The half life is 1,600 years.  
18 Plus the liquid waste contain different  
19 carcinogens, endocrine disrupting chemicals,  
20 heavy metals, poisonous hydrocarbons, and  
21 extremely salt -- high salt content. Just  
22 because they say it isn't hazardous doesn't  
23 make it so. Calling it special is  
24 greenwashing of the harmful chemicals it  
25 contains. Transportation into the watershed

1 for processing, storage, reuse, or other  
2 purposes through release of dangerous fracking  
3 wastewater pollution. Commissioners, please  
4 do not allow this to happen.

5 My second point is the protection of  
6 our blessing of the water in our Delaware  
7 River. Do not foolishly give it away. Most  
8 of the water used at a minimum of five to 10  
9 million gallons per well is never recovered  
10 and so-called super wells used in Marcellus  
11 Shale have used between 10 to 20 million  
12 gallons. The relatively small amount of water  
13 that does come back is contaminated. Now a  
14 hazardous chemical weight -- - of waste  
15 products that can never be completely cleansed  
16 of contamination, and for what? I believe  
17 this use of precious resource of water is  
18 morally wrong. Down the road this use, if  
19 approved, will certainly be judged by future  
20 generations as a selfish decision to benefit  
21 industry, not people. I trust as you listen  
22 to the variety of testimony at these hearings,  
23 you will recognize there is only one response  
24 needed to these dangerous considerations  
25 before you. That is to protect the water and



1 the citizens and say no to these proposals.

2 Thank you for your time.

3 MS. BOWMAN KAVANAGH: Thank you  
4 for your comments. Our next speaker is Sandra  
5 Steingraber followed by Sahana Rao and then  
6 Crystal Hoffman and Tammy Murphy.

7 Sandra, I will allow you to talk now.  
8 Sorry.

9 MS. STEINGRABER: Do you need a  
10 sound check?

11 MS. BOWMAN KAVANAGH: Yes. You  
12 sound great. Thank you. Let me just set the  
13 timer for you. Thanks.

14 MS. STEINGRABER: Good  
15 afternoon. My name is Sandra Steingraber.  
16 I'm a PhD biologist and cofounder of Concerned  
17 Health Professionals of New York. Altogether  
18 we are the authors of the Compendium of  
19 Scientific Medical and Media Findings  
20 Demonstrating the Risks and Harms of Fracking,  
21 which has been released annually since 2014  
22 and which compiles peer-reviewed studies on  
23 various aspects of fracking, including  
24 wastewater. Next month we'll release the  
25 eighth edition and it's out of this report I'm

1 speaking today.

2 As we note in our main findings, the  
3 contamination and store -- the containment and  
4 storage of fracking wastewater remains a  
5 problem with no solution. Prodigious in  
6 quantity and permanently toxic in ways that  
7 are both unpredictable and irremediable by any  
8 known technology, fracking wastewater  
9 represents one of the biggest threats to water  
10 quality and public health from the oil and gas  
11 extraction industry. There is no safe way to  
12 transport and then repurpose fracking  
13 wastewater that's not a threat to groundwater  
14 surface, water, air quality, or public health,  
15 and I'll say that again. Concerned Health  
16 Professionals of New York has identified the  
17 storage and reuse of fracking wastewater as a  
18 significant unfixable threat to water and  
19 health. The moratorium on fracking in the  
20 Delaware River Basin in place since 2010 was  
21 made on the grounds that fracking exposes its  
22 waters to significant, immediate and long-term  
23 risks. Providing a loophole that prohibits  
24 fracking in the basin, but allows for fracking  
25 waste imports is like an opioid crisis

1 response plan that cracks down on the sale of  
2 heroin, but it overlooks the unregulated  
3 distribution of Oxycontin via pharmacies. The  
4 science documenting the unsolvable problem of  
5 fracking wastewater takes up many pages in our  
6 compendium of the 132 mentions of the harms of  
7 fracking wastewater. Here are just a couple.  
8 Fracking wastewater at vanishingly low  
9 concentrations is a developmental toxicant to  
10 fish embryos. Exposure to various  
11 concentrations of fracking wastewater  
12 collected from well sites in Alberta in animal  
13 studies is linked to spinal and heart  
14 abnormalities. A research team at the  
15 University of Missouri traced a spike of  
16 endocrine disrupting activity in a West  
17 Virginia stream to an upstream facility that  
18 stores fracking wastewater, but began leaking.  
19 Any process that uses fracking waste as an  
20 ingredient risks serving as an onramp to  
21 barium. Barium is a heavy metal that is  
22 linked to high blood pressure and is also an  
23 inert neurotoxic and linked to multiple  
24 sclerosis. Chemical reactions between  
25 fracking fluid and rock can contribute to the

1 toxicity of fracking wastewater and our  
2 finding is that we report here is that  
3 fracking fluid can chemically react with  
4 fractured shale in the Marcellus to leach  
5 heavy metals, including barium.

6 So in conclusion, the Delaware River  
7 Basin could not become the graveyard for the  
8 unsolvable toxic problems of the fracking  
9 industry. Wastewater produced by fracking  
10 must be completely and categorically banned  
11 from the basin. Thank you.

12 MS. BOWMAN KAVANAGH: Thank you  
13 for your comments. I see that Sharon Furlong  
14 has rejoined us. I will attempt to see if we  
15 can get the audio going this time. Sharon,  
16 I'm going to allow you to talk.

17 MS. FURLONG: Is this any  
18 better?

19 MS. BOWMAN KAVANAGH: That  
20 sounds much better.

21 MS. FURLONG: Oh, yeah. It took  
22 me awhile. Thanks so much. Sorry, everybody.  
23 Sharon Furlong, Bucks Environmental Action.  
24 Thank you for prohibiting fracking itself in  
25 the entire watershed area. However, the

1 proposed regulations addressing the  
2 importation of toxic wastewater along with the  
3 processing, storage, or disposal of said  
4 poisonous water is like allowing the horse to  
5 live, but burning down the barn and setting  
6 fire to all its grazing land. This doesn't  
7 work for the horse and it doesn't work for us.  
8 It only works for the natural gas industry.  
9 If an industry doesn't know what to do with  
10 its garbage, why are we supporting it or even  
11 allowing it to use us as its dumping ground?  
12 Do not tell us that importations of poisonous  
13 frack water might be allowed if proper, quote,  
14 treatment is employed, end of quote, that must  
15 ensure water quality when we do not even know  
16 what is in this water. In fact, can we still  
17 refer to it as water if it's loaded with  
18 potentially 600 secret chemicals, etc.? Why  
19 not label with poisonous liquids instead? And  
20 if you do that, would you still be able to  
21 advance the notion that it could be treated  
22 the same as household sewage? This makes  
23 little sense to me, but I'm not an expert.  
24 Maybe you folks know of a new treatment  
25 protocol for the removal of all chemicals,

1 including the forever family of PFAS, PFOA,  
2 which we now know can be found in frack  
3 liquids. If so, you might want to share it  
4 with the long-suffering residents of Bucks and  
5 Montgomery counties who have been burdened  
6 with living with poisoned water for too many  
7 years, and finally from the DRBC's own report  
8 regarding climate change in the watershed  
9 found on your website, this report concludes  
10 that climate change will have an impact on the  
11 river due to, A, increasing temperatures,  
12 which will increase the rate of evaporation  
13 and increase the need for water consumption.  
14 B, patterns of rainfall will probably be  
15 short, intense storms with extended droughts  
16 and, C, with sea level rise already here and  
17 advancing faster than anyone predicted  
18 anywhere, more salinity will occur in this  
19 river, thus precipitating water releases and  
20 the reduction of how much is left for all  
21 water users, and let us not forget the  
22 creatures who live in this river and have  
23 nowhere else to go. Therefore, why are you  
24 even considering allowing this industry to  
25 take one drop of all water from our river or

1 return or potentially pollute the area that  
2 supports it? Stop this more subtle form of  
3 insanity now. Thank you.

4 MS. BOWMAN KAVANAGH: Thank you  
5 for your comments. Our next speaker is Sahana  
6 Rao followed by Crystal Hoffman and our final  
7 registered speaker is Tammy Murphy. Sahana, I  
8 see you were here. I will now allow you to  
9 talk. Kindly do a sound check while I reset  
10 the clock.

11 MS. RAO: Hi there. Can  
12 everyone hear me?

13 MS. BOWMAN KAVANAGH: Yes.  
14 Thank you.

15 MS. RAO: Perfect. My name is  
16 Sahana Rao and I am an attorney with the  
17 Natural Resources Defense Council based in our  
18 New York office. I thank you for the  
19 opportunity to comment and will be  
20 supplementing with written comments as well.  
21 Earlier this year, the Commission acted  
22 decisively to ban high volume hydraulic  
23 fracturing within the Delaware River Basin,  
24 which goes partway towards protecting the  
25 community and the environment from the hazards

1 associated with fracking. Now, it is up to  
2 these proposed regulations to eliminate the  
3 remaining loopholes through which hazardous  
4 frack wastewater can still endanger basin  
5 residents and resources. As you've heard from  
6 several commenters today, frack wastewater is  
7 laden with hazardous and radioactive  
8 contaminants and the release of frack  
9 wastewater to the environment can have  
10 dangerous impacts to both human health and the  
11 environment. To start with, NRDC supports the  
12 intention to categorically ban discharges of  
13 frack wastewater in the basin reflected in the  
14 proposed amendments to section 2.3 of the DRBC  
15 Water Code and the proposed section 440.4B of  
16 the special regulations. In keeping with this  
17 intent to protect the basins residents and  
18 resources, DRBC needs to update the proposed  
19 amendments to ensure that there are no  
20 loopholes which would allow frack wastewater  
21 to endanger the basin. To start with, DRBC  
22 needs to define two terms to clarify the scope  
23 of the ban on discharge of HVHF wastewater to  
24 water in the basin. Firstly, the term  
25 discharge should be defined broadly to include



1 any release, spill, discharge, etc in similar  
2 scope to the way that the term release is  
3 defined in federal statutes like the  
4 Comprehensive Environmental Response,  
5 Compensation and Liability Act or CLA.  
6 Secondly, the term waters in the basin should  
7 be broadly defined to include both surface and  
8 groundwater bodies, part or all of which are  
9 located in the basin. Next, the proposed  
10 amendments to the water code rightly placed  
11 restrictions on the importation and  
12 exportation of water to and from the basin.  
13 However, the import of frack wastewater into  
14 the basin and the export of basin water  
15 resources for fracking operations must be  
16 categorically and explicitly prohibited. As  
17 we all know at this point, contributing water  
18 resources for fracking and providing  
19 opportunities for the reuse of imported frack  
20 wastewater both perpetuate fracking operations  
21 outside the basin, which in turn exacerbates  
22 climate change through the release of the  
23 greenhouse gas methane during fracking  
24 operations and the carbon dioxide emissions  
25 that result from the use of fracked gas, and

1 we haven't even touched the water  
2 contamination and hazardous substances that  
3 would plague other communities in the process.  
4 The impacts of climate change are already  
5 harming the Delaware River Basin community and  
6 its water resources. The DRBC has reported on  
7 this and we've seen it recently, for example,  
8 in this past summer being the hottest on  
9 record and with the devastation from Hurricane  
10 Ida. The DRBC must take climate impacts into  
11 account by categorically banning the import of  
12 frack wastewater and banning the export of  
13 basin water for fracking operations. Thank  
14 you again for the opportunity to speak and I  
15 urge the Commissioners to address these  
16 important points so that we can properly ban  
17 fracking and its associated harms from the  
18 basin once and for all.

19 MS. BOWMAN KAVANAGH: Thank you  
20 for your comment. The next speaker on our  
21 list is Crystal Hoffman. I'm not seeing you  
22 on our list of attendees. If I am missing  
23 you, kindly raise your hand. Having not seen  
24 any hands raised, our next speaker is Tammy  
25 Murphy. Tammy. Tammy, I will allow you to

1 talk. You may have to unmute on your end as  
2 well, Tammy.

3 MS. MURPHY: Hi. Can you hear  
4 me now?

5 MS. BOWMAN KAVANAGH: I can.  
6 Thank you. Go ahead.

7 MS. MURPHY: Okay. Great.  
8 Thank you. So I implore the Delaware River  
9 Basin commissioners to fully prohibit all  
10 forms of direct and indirect importation of  
11 waste into the Delaware River watershed.  
12 Likewise, I implore the Commissioners to fully  
13 prohibit all forms of water extraction from  
14 the Delaware River watershed. The draft  
15 regulations include an essential prohibition  
16 of the direct discharging of fracking --  
17 fracking wastewater into the Delaware River  
18 Basin. Yet, they are riddled with loopholes  
19 that would dangerously allow the indirect  
20 importation of wastewater into the Delaware  
21 River watershed, exposing human communities  
22 and the entire ecosystem to pathways of  
23 deadly, toxic and radioactive wastewater.  
24 Because of the draft regulations, failure to  
25 prohibit the processing, evaporation, storage,

1 reused in other forms of indirect disposal of  
2 wastewater into the Delaware River watershed.  
3 Disposal of fracking waste is a major threat  
4 to public health because this waste contains  
5 concentrated toxins, including heavy metals,  
6 radioactivity, and organic compounds. Over  
7 1000 chemicals can be used in fracking and at  
8 least 157 of these chemicals have known  
9 developmental or reproductive toxicity. These  
10 organic compounds disrupt endocrine function  
11 and development from conception through  
12 adolescence. Even more disturbing, the vast  
13 majority have not been studied sufficiently to  
14 know if they are or not safe. We know that  
15 many aromatic compounds, such as benzene,  
16 Toluene, ethylbenzene and xylene as well as  
17 radioactive elements are known carcinogens.  
18 Given this toxicity I think that it needs to  
19 be stated. After all of these folks spoke  
20 today, it's actually utterly absurd that we  
21 need to ask the Commissioners to not poison  
22 us. To not poison our ecosystem and not  
23 threaten human life, the lives of our pets,  
24 the lives of agriculture, our the plants.  
25 Given the climate crisis, it's the whole

1 entire process is absurd and I really -- I  
2 really just want to point out the absurdity  
3 that we have to get on here and beg you not to  
4 poison us. Thank you.

5 MS. BOWMAN KAVANAGH: Thank you  
6 for your comments. We had several folks, so I  
7 was not able to identify on the attendee list,  
8 but who had registered previously. I see one  
9 of them now with their hand raised, so Eric  
10 Benson, I will now allow you to talk so you  
11 can provide comments. Please do a sound check  
12 while I reset the clock.

13 MR. BENSON: Thanks, Kristen. I  
14 think I'm ready to go here. I registered, but  
15 was not able to join earlier, so thanks for  
16 having me today.

17 MS. BOWMAN KAVANAGH: Glad you  
18 could make it.

19 MR. BENSON: All right. So this  
20 is Eric Benson. I am a Clean Water Action New  
21 Jersey campaign director. Today  
22 Commissioners, I'm speaking not only as a  
23 concerned activist, but also as a father. I'm  
24 an avid canoer, camper and a fisher who has  
25 spent countless days of venturing with my

1 family in the Delaware River Basin. I'm  
2 calling on you to enact a full frack ban now  
3 rather than creating the rules with giant  
4 loopholes that only serve to the benefit of  
5 the fracked gas industry and at the expense of  
6 everyone else who uses the river basin. As a  
7 parent of two small children, my biggest  
8 concern is fracking's impact on climate  
9 change. As proposed, these rules would still  
10 allow water to be withdrawn from the river  
11 basin for fracking and would still allow  
12 fracking waste to be imported from -- to be  
13 imported in the basin. Others have spoken to  
14 the loss of river -- of water from the river  
15 system and the horrific pollution. I'm also  
16 concerned that this is enabling a fracking  
17 industry to continue their climate destructive  
18 practices. The fracking industry needs more  
19 water to continue to drill and it needs places  
20 to store and process waste. By not completely  
21 banning fracking, as well as fracking  
22 activities in the basin, these rules  
23 practically invite the industry's thirst for  
24 water to take it from the Delaware River  
25 Basin. This enables fracking to continue to

1 destroy the climate. Methane is a powerful  
2 greenhouse gas. It is 86 times more powerful  
3 than carbon at heating the atmosphere on a 20  
4 year time scale. 104 times more powerful than  
5 carbon over a 10 year period. That's more  
6 potent than the carbon emissions from coal or  
7 oil cradle to grave. The DRBC should not be  
8 helping the destructive fracking industry to  
9 get access to the water it needs. Climate  
10 change is already threatening the ecosystem of  
11 the Delaware River watershed. Violent storms  
12 dump more water in shorter periods of time,  
13 which contribute to flooding.

14           Commissioners, you need to be a part of  
15 the climate solution. Not part of the climate  
16 problem. We need a total ban on the  
17 importation of frack waste in the basin and a  
18 total ban on the export of water from the  
19 basin for fracking. My family and all the  
20 families who want to enjoy the watershed, who  
21 drink water from the basin and who want to see  
22 a livable climate future deserve a total ban  
23 on fracking.

24           The last point. Commissioners, your  
25 public input process shuts people out. Anyone

1 who wants to commit -- comment you get a  
2 chance. Please provide public participation  
3 process that works for everyone. Full frack  
4 ban now. Thank you.

5 MS. BOWMAN KAVANAGH: Thank you  
6 for your comments. If you have registered in  
7 advance to speak and you have not yet had the  
8 opportunity, kindly raise your hands. I will  
9 give you a few moments. That feature is on  
10 the center bottom of your screen. All right.  
11 I don't see anyone raising their hand and we  
12 have completed the list of the other  
13 registered attendees who were seen to be  
14 present. So that concludes this public  
15 hearing. Thank you to everyone for attending  
16 and on behalf of the Delaware River Basin  
17 Commission, I also want to thank those of you  
18 who offered comments. As a reminder, you can  
19 still register to comment at one of the two  
20 hearings scheduled for December 15, 2021, and  
21 you may also submit written comments by 5:00  
22 PM Eastern Time on February 28, 2022. For  
23 more information, please visit the DRBC  
24 website. I do want to note I do see one hand  
25 raised, but you are required to register in



1 advance. If you go to our website, you will  
2 be able to register for one of the hearings  
3 scheduled for December 15th. Thank you and  
4 have a good afternoon.

5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

C E R T I F I C A T E

I, CYNTHIA BAUERLE, a Certified  
Shorthand Reporter/Transcriptionist, do hereby  
certify that I was authorized to transcribe  
the foregoing recorded proceeding, and that  
the transcript is a true and accurate  
transcription of my shorthand notes, to the  
best of my ability, taken while listening to  
the provided recording. I further certify that  
I am not of counsel or attorney for either or  
any of the parties to said proceedings, nor in  
any way interested in the events of this  
cause, and that I am not related to any of the  
parties thereto.

Dated this 24th day of January, 2022



CYNTHIA BAUERLE

CSR No. 30XI00198500

<hr/> <b>0</b> <hr/>	<b>28</b> 6:2 8:25 <hr/>	53:1	<b>Additionally</b>
<b>08628</b> 9:9 <hr/>	<b>3</b> <hr/>	<b>absurdity</b>	25:9
<b>1</b> <hr/>	<b>3,000,000</b>	53:2	<b>address</b> 4:3
<b>1,600</b> 39:17	22:14	<b>acceptable</b>	50:15
<b>10</b> 21:7 31:3	<b>39</b> 13:10 <hr/>	29:9	<b>addressed</b>
36:2 38:12	<b>4</b> <hr/>	<b>accepted</b> 10:5	11:13
40:8,11	<b>440.4B</b> 48:15 <hr/>	<b>accepting</b>	<b>addresses</b>
<b>100,000</b> 21:15	<b>5</b> <hr/>	8:22,23	9:19 12:5
<b>1000</b> 52:7	<b>5,000</b> 36:20	<b>access</b> 4:10	<b>addressing</b>
<b>12</b> 30:21	<b>50%</b> 33:6	9:4	45:1
<b>132</b> 43:6	<b>5:00</b> 8:24	<b>accident</b>	<b>adjust</b> 34:7
<b>14</b> 27:23 37:8	10:5 <hr/>	14:14,18	<b>administrative</b>
<b>14th</b> 10:6	<b>6</b> <hr/>	<b>accidents</b>	3:12 5:5,12
<b>15</b> 36:3	<b>600</b> 45:18	18:21	<b>adolescence</b>
<b>15044</b> 39:8	<b>60th</b> 21:1	<b>accompanied</b>	52:12
<b>157</b> 52:8	<b>68%</b> 31:23 <hr/>	8:14	<b>advance</b> 4:11
<b>15th</b> 10:2	<b>7</b> <hr/>	<b>accordance</b>	9:23 11:21
11:25	<b>73,000</b> 27:5	6:23 8:12	13:2 45:21
<b>17</b> 38:2	<b>7360</b> 9:9 <hr/>	<b>account</b> 50:11	<b>advancing</b>
<b>1950</b> 24:12	<b>9</b> <hr/>	<b>Achilles</b>	46:17
26:2	<b>9</b> 10:16	21:22	<b>advertised</b>
<b>1970s</b> 24:24	<b>90</b> 37:25 <hr/>	<b>acidification</b>	3:16
31:24	<b>A</b> <hr/>	31:18	<b>affect</b> 18:23
<b>1980s</b> 25:2	<b>ability</b> 11:7	<b>act</b> 12:9,17	28:15
<b>2</b> <hr/>	<b>abnormalities</b>	25:9 27:20	<b>affected</b> 6:13
<b>2.3</b> 48:14	43:14	49:5	<b>affiliation</b>
<b>20</b> 40:11	<b>absolute</b>	<b>acted</b> 47:21	11:1 13:16
<b>2005</b> 25:8	18:25	<b>action</b> 19:16	20:13
<b>2007</b> 36:6	<b>absorbers</b>	30:25 33:2,	<b>afternoon</b> 3:2
<b>2010</b> 42:20	31:18	14,17 44:23	41:15
<b>2014</b> 41:21	<b>absurd</b> 52:20	53:20	<b>agree</b> 31:24
<b>2017</b> 30:20		<b>activist</b>	<b>agriculture</b>
<b>2021</b> 6:2,24		53:23	52:24
10:3,6 11:25		<b>activities</b>	<b>ahead</b> 17:1
<b>2022</b> 8:25		7:9 8:2,17	27:1 39:5
<b>2030</b> 33:7		18:5 19:23	51:6
<b>2031</b> 25:15		21:9,13 23:5,	<b>air</b> 14:23
<b>226</b> 28:14		11 54:22	15:2,4,14
<b>25th</b> 6:24		<b>activity</b>	18:6,8,12
		43:16	32:9 42:14
		<b>ad</b> 15:6	<b>Alberta</b> 43:12
		<b>add</b> 37:4	<b>allowed</b>
		<b>added</b> 25:8	16:11,12
		<b>addition</b> 6:19	24:3,9 37:13
		7:25 8:21	45:13
		18:12 28:1	<b>allowing</b>
			32:13 34:13

36:25 45:4,11 46:24 <b>alluded</b> 28:21 <b>alternates</b> 12:18 <b>Alternatively</b> 12:12 <b>Altogether</b> 41:17 <b>Amazon</b> 31:17 <b>amend</b> 5:18 7:10,24 <b>amendments</b> 6:13,25 7:18 48:14,19 49:10 <b>amount</b> 40:12 <b>animal</b> 43:12 <b>anniversary</b> 21:2 <b>announcements</b> 4:1 <b>annually</b> 41:21 <b>anymore</b> 37:1 <b>anytime</b> 11:8 <b>apologies</b> 16:20 <b>appalled</b> 39:10 <b>apply</b> 7:18,21 <b>appointed</b> 12:18 <b>approve</b> 12:10,11 <b>approved</b> 7:17 40:19 <b>aquatic</b> 18:8 <b>aquifer</b> 15:6 <b>aquifers</b> 28:24 <b>arctic</b> 31:8 <b>area</b> 26:11 38:17 44:25 47:1 <b>areas</b> 38:2,9	<b>Army</b> 12:23 <b>aromatic</b> 52:15 <b>Arrindell</b> 20:8 23:15, 21,24,25 <b>aspects</b> 41:23 <b>Atlantic</b> 12:23 <b>attempt</b> 10:8 44:14 <b>attempting</b> 34:11 <b>attend</b> 3:19 9:16 <b>attendee</b> 4:6 53:7 <b>attendees</b> 10:9 29:24 50:22 <b>attending</b> 3:14 <b>Attention</b> 9:8 <b>attorney</b> 36:7 47:16 <b>audio</b> 4:24 5:1 10:19 35:19,21 44:15 <b>authors</b> 41:18 <b>avid</b> 53:24 <b>avoid</b> 8:9 <b>awhile</b> 44:22	17,19 23:5,11 26:15 27:11 29:16 32:5,21 47:22 48:12, 23 50:16 54:2 <b>banned</b> 25:18 32:21 44:10 <b>banning</b> 13:25 15:22,23 25:10,18 32:18 50:11, 12 54:21 <b>Barbara</b> 20:8 23:15,18,25 <b>barium</b> 28:10 43:21 44:5 <b>barn</b> 45:5 <b>based</b> 47:17 <b>basically</b> 38:16 <b>basin</b> 3:3 5:18,22 6:4 7:6,8,13,14 8:9,12,15 12:19 13:25 14:6,9,13 15:21,22 16:1,3,8,10, 15,16 22:19 24:5 25:11,19 26:10 27:7 32:16 33:15 37:12,23 42:20,24 44:7,11 47:23 48:4,13,21,24 49:6,9,12,14, 21 50:5,13,18 51:9,18 54:1, 6,11,13,22,25 <b>basin's</b> 7:4 8:5 <b>basins</b> 14:20 48:17 <b>basis</b> 6:19 <b>Bay</b> 37:11 <b>beautiful</b> 38:1,18	<b>bee</b> 31:20 <b>beg</b> 38:16 53:3 <b>began</b> 43:18 <b>beginning</b> 10:19 <b>behalf</b> 3:3 12:21 27:5 29:12 <b>beneficial</b> 23:2 <b>benefit</b> 40:20 54:4 <b>Benson</b> 16:22 20:2,9 53:10, 13,19,20 <b>benzene</b> 28:12 52:15 <b>big</b> 15:24 36:16 <b>biggest</b> 20:24 42:9 54:7 <b>billions</b> 31:11 <b>biocides</b> 24:23 <b>biodiversity</b> 31:22 <b>biologist</b> 41:16 <b>bird</b> 31:19 <b>bit</b> 34:19 <b> blessing</b> 40:6 <b>blew</b> 37:17 <b>blocking</b> 20:24 <b>blood</b> 43:22 <b>bodies</b> 49:8 <b>bottom</b> 10:13 20:5 30:2 <b>Bowman</b> 3:1,2 13:21 16:18 17:5 19:25 20:17 23:13, 22 26:16,25 29:20 30:14 33:20 34:5,25
	<b>B</b>		

35:3,10,20 38:21 41:3,11 44:12,19 47:4,13 50:19 51:5 53:5,17 <b>Box</b> 9:8 <b>brew</b> 16:4 21:24 <b>bricks</b> 15:19 <b>brines</b> 28:4 <b>bringing</b> 14:14 16:4 25:22 36:10 <b>brings</b> 28:3 <b>brink</b> 32:2 <b>broadcast</b> 4:15,20 <b>broadly</b> 48:25 49:7 <b>bromides</b> 28:9 <b>brought</b> 27:13 <b>Bucks</b> 44:23 46:4 <b>burdened</b> 46:5 <b>burning</b> 45:5 <b>Bush</b> 25:8	28:14 <b>canoer</b> 53:24 <b>capabilities</b> 26:6 <b>capable</b> 26:8 <b>carbon</b> 31:17 49:24 <b>carcinogens</b> 27:24 39:19 52:17 <b>cardiovascular</b> 28:16 <b>care</b> 13:4 <b>careful</b> 25:7 <b>Carluccio</b> 13:7 16:22 17:3,7,8 <b>case</b> 4:24 6:19 <b>catastrophic</b> 31:10 <b>categorically</b> 19:17 32:20 44:10 48:12 49:16 50:11 <b>Category</b> 31:11 <b>caught</b> 31:15 36:18 <b>causing</b> 24:11 25:24 26:8 31:16,25 <b>cement</b> 15:18 18:4 <b>center</b> 10:12 20:5 <b>chance</b> 14:14 <b>chances</b> 14:18 <b>change</b> 46:8, 10 49:22 50:4 54:9 <b>changed</b> 31:2 <b>channel</b> 3:21 4:16 13:12 <b>chat</b> 5:3 <b>check</b> 13:18 17:2 20:12	23:19 26:23 30:10 34:2 35:15 38:25 39:5 41:10 47:9 53:11 <b>chemical</b> 15:13 40:14 43:24 <b>chemically</b> 44:3 <b>chemicals</b> 16:5 21:24 24:20 25:25 27:21,23 28:14 31:15 39:19,24 45:18,25 52:7,8 <b>Cheney</b> 25:8 <b>Chesapeake</b> 37:10 <b>children</b> 54:7 <b>chlorides</b> 28:9 <b>circumstances</b> 7:11 11:9 <b>citizen</b> 39:9 <b>citizens</b> 24:1 36:18 41:1 <b>CLA</b> 49:5 <b>clarify</b> 48:22 <b>clarifying</b> 7:11 <b>clean</b> 14:17 19:8 27:8 33:12 37:7 53:20 <b>cleansed</b> 40:15 <b>clear</b> 27:9 <b>climate</b> 31:5 33:7 46:8,10 49:22 50:4,10 52:25 54:8,17 <b>clock</b> 16:25 20:14 47:10 53:12	<b>closed</b> 11:16 23:3,8 34:24 <b>closer</b> 22:7 <b>closing</b> 22:21 <b>code</b> 5:19 7:10 48:15 49:10 <b>cofounder</b> 41:16 <b>Cole</b> 35:12 38:23,25 <b>colleagues</b> 29:12 <b>collected</b> 43:12 <b>commander</b> 12:22 <b>commence</b> 12:13 <b>comment</b> 4:19 9:18 11:10, 13,16 12:4 30:17 47:19 50:20 <b>commenter</b> 16:21 26:17 <b>commenters</b> 48:6 <b>comments</b> 3:11 4:14 5:2,7,8, 10,13,15 8:22,24,25 9:2,6,15 10:20,23 11:2,3,8,12, 22 12:8 13:3 16:21 20:1 23:14 24:6 26:17 29:11, 21 33:21 38:22 41:4 44:13 47:5,20 53:6,11 <b>Commission</b> 3:4 5:18 6:8, 25 7:10,15,23 8:23 9:8,22 11:15 12:16
<hr/> <b>C</b> <hr/>			
<b>Cabot</b> 36:9 <b>California</b> 28:20 <b>call</b> 10:7,14, 16 33:13 <b>called</b> 15:2, 12 21:14 25:15 <b>Callicoon</b> 38:2 <b>calling</b> 21:17 39:23 54:2 <b>camera</b> 4:10 <b>campaign</b> 53:21 <b>camper</b> 53:24 <b>cancer</b> 24:11			

16:16 19:6,14 47:21 <b>Commission's</b> 5:18 6:7,14 <b>commissioners</b> 6:23 9:14,18 12:4,7,13,17, 18 40:3 50:15 51:9,12 52:21 53:22 <b>communities</b> 18:12,20,22 24:17 26:4 50:3 51:21 <b>community</b> 19:9 47:25 50:5 <b>community's</b> 36:10 <b>companies</b> 27:20 36:18 <b>company</b> 24:13 <b>compendium</b> 41:18 43:6 <b>Compensation</b> 49:5 <b>compiles</b> 41:22 <b>complete</b> 27:11 32:21 <b>completely</b> 26:15 29:16 32:20 35:6 40:15 44:10 54:20 <b>components</b> 6:14 <b>compounds</b> 52:6,10,15 <b>comprehensive</b> 7:1 8:8,10,13 49:4 <b>Compressed</b> 37:20 <b>computer</b> 4:23,25 9:5 <b>concentrated</b>	52:5 <b>concentrations</b> 43:9,11 <b>concept</b> 15:10 <b>conception</b> 52:11 <b>concern</b> 15:1, 9,17 54:8 <b>concerned</b> 39:9 41:16 42:15 53:23 54:16 <b>concerns</b> 9:20 12:5 <b>concludes</b> 46:9 <b>conclusion</b> 44:6 <b>conduct</b> 3:9 <b>connection</b> 4:23 7:5 10:18 <b>conservation</b> 7:2 8:4 <b>consideration</b> 9:1 <b>considerations</b> 40:24 <b>considered</b> 6:18 7:15 <b>consistent</b> 11:6 <b>constituents</b> 28:7 <b>constructions</b> 18:4 <b>consultation</b> 9:17 <b>consumption</b> 46:13 <b>containment</b> 42:3 <b>contaminants</b> 24:14 28:4 29:5 48:8 <b>contaminated</b> 36:4 40:13	<b>contamination</b> 18:16 25:24 40:16 42:3 50:2 <b>contemplated</b> 8:10 <b>content</b> 39:21 <b>continue</b> 35:4 54:17,19,25 <b>contribute</b> 43:25 <b>contributing</b> 49:17 <b>control</b> 7:4 26:4 31:8 <b>controlling</b> 8:6 <b>convenient</b> 26:11 <b>cooling</b> 15:10 18:2 <b>Copies</b> 8:17 <b>Corporations</b> 36:16 <b>Corps</b> 12:23 <b>corrode</b> 25:20 <b>Council</b> 47:17 <b>countdown</b> 13:1 <b>counties</b> 46:5 <b>countless</b> 53:25 <b>couple</b> 43:7 <b>coupled</b> 21:4 <b>covers</b> 36:20 <b>Cox</b> 30:8,12, 16,18 <b>cracks</b> 43:1 <b>cradle</b> 25:4 <b>Craig</b> 35:11, 13,24 <b>crashes</b> 37:22 <b>created</b> 9:11 22:5 <b>creating</b> 54:3 <b>creatures</b>	46:22 <b>creek</b> 37:18 <b>crisis</b> 33:7 42:25 52:25 <b>crucial</b> 17:12 <b>Crystal</b> 41:6 47:6 50:21 <hr/> <p style="text-align: center;"><b>D</b></p> <hr/> <b>Dam</b> 20:25 <b>damage</b> 31:11 <b>damages</b> 32:24 <b>Damascus</b> 23:25 <b>damning</b> 24:16 <b>dangerous</b> 33:16 40:2,24 48:10 <b>dangerously</b> 51:19 <b>dark</b> 31:15 <b>date</b> 7:20 25:15 <b>Davis</b> 23:16 26:19 29:22 <b>day</b> 10:5 <b>days</b> 53:25 <b>de</b> 21:7 <b>deadly</b> 51:23 <b>decade</b> 30:24 <b>decades</b> 24:12 <b>December</b> 10:2,6 11:24 <b>decide</b> 11:5 <b>decision</b> 12:15 40:20 <b>decision-</b> <b>making</b> 9:12 <b>decisively</b> 47:22 <b>declining</b> 31:20 <b>deeply</b> 24:5 <b>defend</b> 19:12
--	--	---	---

<b>defense</b> 28:17 47:17	<b>destructive</b> 54:17	<b>discharging</b> 51:16	24
<b>define</b> 48:22	<b>detailed</b> 9:18	<b>discussed</b> 21:1	<b>drafted</b> 32:11
<b>defined</b> 24:8 48:25 49:3,7	<b>devastated</b> 31:13	<b>discussions</b> 39:13	<b>drastic</b> 31:3
<b>definitions</b> 14:8 24:6	<b>devastation</b> 50:9	<b>disposal</b> 24:7,8 26:11	<b>DRBC</b> 3:6,16, 20 4:21 5:8, 11 6:2,20 8:18 9:3,7,8, 14,17 11:18 12:1,3 16:14, 15 21:2 23:9 25:10 26:5 29:14 32:4 33:1,14 36:15 37:11 38:1,15 48:14,18,21 50:6,10
<b>Deforestation</b> 31:16	<b>develop</b> 12:4	<b>dispose</b> 21:24 28:19,22	<b>DRBC's</b> 4:15 10:3 24:4 26:12 46:7
<b>deicing</b> 22:4 29:7	<b>development</b> 7:3 8:4 24:13 52:11	<b>disposed</b> 25:4	<b>drift</b> 15:13
<b>Delaware</b> 3:3 5:17,22 12:20 16:15 17:8 18:11 19:1, 11,12 21:12 22:8,19 24:5 25:11,19 26:10 27:7 29:10,18 32:8,15 33:14 37:23 38:1,18 40:6 42:20 44:6 47:23 50:5 51:8,11, 14,17,20 52:2 54:1,24	<b>developmental</b> 27:25 43:9 52:9	<b>disrupt</b> 28:15 52:10	<b>drill</b> 36:13, 15 38:4 54:19
<b>deliberately</b> 25:23	<b>device</b> 34:10	<b>disrupting</b> 39:19 43:16	<b>drilling</b> 21:8 28:2 33:3
<b>deliver</b> 18:6	<b>died</b> 37:22	<b>dissolved</b> 28:11	<b>drinking</b> 27:8,17,19
<b>Demonstrating</b> 41:20	<b>difference</b> 34:17	<b>distribution</b> 43:3	<b>drive</b> 15:24 37:25
<b>depending</b> 11:9 28:7	<b>Dimock</b> 36:3	<b>disturbing</b> 52:12	<b>drivers</b> 37:22
<b>deposit</b> 18:7	<b>dioxide</b> 31:18 49:24	<b>dived</b> 25:2	<b>drop</b> 46:25
<b>deposition</b> 15:3 18:13	<b>direct</b> 11:2 22:2,4 51:10, 16	<b>division</b> 12:22,23	<b>droughts</b> 37:15 46:15
<b>deprive</b> 19:9	<b>directive</b> 6:24	<b>document</b> 9:19 11:14,15 12:5	<b>drove</b> 37:18
<b>deputy</b> 3:5 17:8	<b>directly</b> 14:10 17:25 28:24 32:9	<b>documenting</b> 43:4	<b>drying</b> 14:24
<b>describe</b> 3:13 9:21	<b>director</b> 3:5 17:8 20:21,25 23:25 27:4 36:22 53:21	<b>documents</b> 6:1,10,15	<b>due</b> 46:11
<b>destroy</b> 19:5	<b>disaster</b> 16:7 27:16	<b>dollars</b> 31:11	<b>dump</b> 22:11
<b>destroyed</b> 36:6 37:13	<b>discharge</b> 5:23 7:8 8:1, 7,15 14:10 16:12 17:10, 16,23,25 18:25 19:7 21:19 22:2,3 32:22 48:23, 25 49:1	<b>domes</b> 31:8	<b>dumped</b> 25:23
<b>destruction</b> 19:19 31:19	<b>discharges</b> 22:24 48:12	<b>door</b> 21:11 22:21	<b>dumping</b> 36:20 45:11
		<b>Doug</b> 16:22 20:7,10,11,21	
		<b>downstream</b> 24:18 38:3,6	
		<b>dozens</b> 37:5	
		<b>draft</b> 5:16 6:1,5 17:9 19:7 21:18 22:20 23:3 24:4,7 51:14,	
			<b>E</b>
			<b>e-mail</b> 6:17
			<b>earlier</b> 47:21 53:15
			<b>early</b> 24:24 25:2

<b>earth</b> 31:4	<b>enables</b> 54:25	<b>environmentall</b>	<b>exportations</b>
<b>earthly</b> 26:9	<b>enabling</b>	<b>y</b> 19:15	7:12,19,23
<b>easily</b> 38:5,7	54:16	<b>Eric</b> 16:22	<b>exports</b> 7:17
<b>Eastern</b> 8:24	<b>enact</b> 54:2	20:2,7,9	<b>exposes</b> 18:19
10:6	<b>encouraged</b>	53:9,20	42:21
<b>echo</b> 34:6	4:23	<b>essential</b>	<b>exposing</b>
<b>echoes</b> 5:2	<b>end</b> 10:17	51:15	51:21
<b>echoey</b> 35:1	11:7,20 26:22	<b>ethylbenzene</b>	<b>Exposure</b>
<b>echoing</b> 29:10	30:4 35:5	52:16	43:10
<b>economically</b>	45:14 51:1	<b>euphemism</b>	<b>extended</b>
19:15	<b>endanger</b>	23:2	46:15
<b>ecosystem</b>	18:21 48:4,21	<b>evaluating</b>	<b>extinction</b>
51:22 52:22	<b>endangered</b>	7:16	32:1
<b>Edith</b> 26:19	31:21	<b>evaporated</b>	<b>extraction</b>
29:22	<b>endocrine</b>	14:4	28:8 37:9
<b>edition</b> 41:25	28:15 39:19	<b>evaporates</b>	42:11 51:13
<b>effect</b> 25:6	43:16 52:10	15:13	<b>extremely</b>
<b>effective</b>	<b>ends</b> 15:3,4	<b>evaporation</b>	39:21
7:20 19:15	<b>energy</b> 25:8	14:25 17:22	
<b>effects</b> 24:11	33:12	46:12 51:25	
26:1 33:16	<b>enforcement</b>	<b>Evidence</b> 31:5	<b>F</b>
39:12	26:6	<b>evolved</b> 22:1	
<b>effectuate</b>	<b>engage</b> 21:13	<b>exacerbates</b>	<b>facilities</b>
8:8	<b>Engineers</b>	49:21	14:15,19 22:3
<b>eighth</b> 41:25	12:24	<b>exceed</b> 10:21	25:12 26:5
<b>elements</b>	<b>ensure</b> 3:8	<b>exception</b> 9:7	<b>facility</b>
52:17	45:15 48:19	<b>executive</b> 3:5	43:17
<b>eliminate</b>	<b>enter</b> 17:18	<b>exempt</b> 27:19	<b>fact</b> 36:13
27:11 29:15	<b>entered</b> 19:4	<b>exempted</b> 16:6	45:16
48:2	<b>entire</b> 36:9	<b>exemptions</b>	<b>facto</b> 21:7
<b>Elkhorn</b> 14:20	44:25 51:22	25:7	<b>factors</b> 7:15
<b>embryos</b> 43:10	53:1	<b>existed</b> 7:19	<b>factory</b> 15:11
<b>emergency</b>	<b>entity</b> 25:24	<b>existing</b> 7:22	<b>failure</b> 51:24
31:5	<b>entry</b> 34:13,	<b>expect</b> 11:11	<b>faith</b> 39:10
<b>emissions</b>	17,21	<b>expectation</b>	<b>Falls</b> 14:21
17:24 18:7	<b>environment</b>	7:7	<b>family</b> 46:1
25:25 30:22	14:12 18:20	<b>expense</b> 54:5	54:1
31:7 32:25	20:21 26:8	<b>expert</b> 45:23	<b>Fantastic</b>
33:4 49:24	30:19 32:10,	<b>expiration</b>	30:16
<b>employed</b>	25 47:25	25:14	<b>fast</b> 30:23
45:14	48:9,11	<b>explicitly</b>	<b>faster</b> 46:17
<b>employing</b>	<b>environmental</b>	49:16	<b>father</b> 53:23
17:22	24:14,25	<b>export</b> 19:17	<b>feature</b> 5:3
<b>enable</b> 9:14	39:12 44:23	23:6 49:14	10:11 20:4
33:8	49:4	50:12	30:1
<b>enabled</b> 4:13		<b>exportation</b>	<b>features</b> 4:7
		5:21 49:12	<b>February</b> 6:23



8:25 21:3 32:18 <b>federal</b> 3:17 6:3 12:21 49:3 <b>felonies</b> 36:8 <b>fight</b> 33:7 <b>filed</b> 36:8 <b>final</b> 7:20 47:6 <b>finally</b> 46:7 <b>find</b> 10:8,10 16:24 <b>finding</b> 7:25 8:13 44:2 <b>findings</b> 41:19 42:2 <b>fine</b> 13:22 35:22 <b>finish</b> 16:9 23:9 <b>fire</b> 31:15 45:6 <b>Firstly</b> 48:24 <b>fish</b> 18:8 43:10 <b>fisher</b> 53:24 <b>fix</b> 29:14 35:5 <b>flipped</b> 37:19 <b>flooding</b> 31:10 <b>flow</b> 36:11 <b>fluid</b> 27:18 43:25 44:3 <b>fluids</b> 22:4 24:20 28:1 <b>focus</b> 37:6 <b>folks</b> 45:24 52:19 53:6 <b>follow</b> 10:24 24:6 <b>Food</b> 27:4 <b>foolishly</b> 40:7 <b>forever</b> 46:1	<b>forget</b> 46:21 <b>form</b> 47:2 <b>formation</b> 24:21 <b>forms</b> 16:2 29:16 51:10, 13 52:1 <b>forward</b> 13:25 <b>fossil</b> 31:6, 14,24 33:11 <b>found</b> 8:18 36:23 46:2,9 <b>frack</b> 27:21 32:12 36:11 38:13 45:13 46:2 48:4,6, 8,13,20 49:13,19 50:12 54:2 <b>fracked</b> 49:25 54:5 <b>fracking</b> 13:25 14:2,3, 9 15:21,23 16:2,3 17:10, 14,15,18 18:5,6,10,14 19:3,18,20, 21,23 21:4,9, 11,13,20 22:5,14,23 23:5,11 24:3, 20 27:12,15, 18 28:3,19 29:2,4,8,17, 19 32:5,14, 18,20,23,24 33:9,17 36:5 37:8 39:12,15 40:2 41:20,23 42:4,8,12,17, 19,21,24 43:5,7,8,11, 18,19,25 44:1,3,8,9,24 48:1 49:15, 18,20,23 50:13,17	51:16,17 52:3,7 54:11, 12,16,18,21, 25 <b>fracking's</b> 32:7 54:8 <b>fractured</b> 44:4 <b>fracturing</b> 5:24 47:23 <b>frequently</b> 11:17 <b>Friday</b> 8:25 <b>fuel</b> 31:14 33:11 <b>fuels</b> 31:7,24 <b>full</b> 21:17 54:2 <b>fully</b> 19:2,16 24:19 51:9,12 <b>function</b> 52:10 <b>Furlong</b> 33:22 34:3,23 35:2, 9 44:13,17, 21,23 <b>future</b> 8:6 10:2 11:24 19:10 40:19	<b>general</b> 25:13 36:7 <b>generation</b> 35:24 38:15 <b>generations</b> 19:10 40:20 <b>geology</b> 28:8 <b>giant</b> 54:3 <b>Gibsonia</b> 39:8 <b>give</b> 13:8 16:24 20:6 30:3 34:7 40:7 <b>giving</b> 38:12 <b>Glad</b> 53:17 <b>global</b> 31:7 33:5 <b>glut</b> 22:17 <b>goals</b> 19:9 <b>good</b> 3:1 21:23 23:24 41:14 <b>Google</b> 6:21 <b>government</b> 12:22 30:25 <b>governors</b> 12:19 <b>grave</b> 25:4 <b>gravely</b> 18:21 <b>graveyard</b> 44:7 <b>grazing</b> 45:6 <b>grease</b> 28:11 <b>great</b> 13:21, 24 20:18 30:12 33:23 35:23 41:12 51:7 <b>green</b> 17:15 <b>greenhouse</b> 33:1,3,6 49:23 <b>greenwashing</b> 39:24 <b>ground</b> 36:14 37:6 45:11
<hr/> <b>G</b> <hr/>			
	<b>gallons</b> 22:14 36:21 40:9,12 <b>gaping</b> 23:7 32:16 <b>garbage</b> 45:10 <b>gas</b> 24:10 25:1 33:1,3 36:1,9,13,15 37:20 42:10 45:8 49:23,25 54:5 <b>gases</b> 33:6 <b>Gehlert</b> 23:17 26:19 29:22		

<b>grounds</b> 42:21	32:24 39:11	<b>horrific</b>	32:6,22 49:13
<b>groundwater</b>	41:17 42:10,	54:15	50:11
18:16 42:13	14,15,19	<b>horrified</b>	<b>important</b>
49:8	48:10 52:4	30:24	25:9 50:16
	<b>healthy</b> 19:8	<b>horse</b> 45:4,7	<b>importation</b>
	<b>hear</b> 9:15	<b>hottest</b> 50:8	5:20 7:5
	13:22 17:3	<b>household</b>	14:2,9 45:2
	20:16 23:21	45:22	49:11 51:10,
	26:24 30:12	<b>How's</b> 34:23	20
	34:12 35:21	<b>huge</b> 17:17	<b>importations</b>
	47:12 51:3	<b>human</b> 18:22	7:13,19,22
<b>H</b>	<b>heard</b> 48:5	19:19 27:23	45:12
<b>habitable</b>	<b>hearing</b> 3:4,	48:10 51:21	<b>imported</b>
30:22 31:4	6,7,9,15 4:2,	52:23	22:23 26:3,15
33:13,18	12,14 5:4,17	<b>Hurricane</b>	32:15 49:19
<b>habitat</b> 31:19	6:12 9:21	31:12 50:9	54:12,13
<b>habitats</b>	10:2,14 11:2,	<b>HVHF</b> 5:24	<b>imports</b> 7:17
18:22	4,6,12,20,24	7:9,25 8:1,2,	42:25
<b>half</b> 37:10	13:5	16,17 48:23	<b>impoundments</b>
39:17	<b>hearings</b> 5:9	<b>hydraulic</b>	25:21
<b>hand</b> 10:11,17	8:20,23 9:16	5:24 47:22	<b>include</b> 6:11
13:14 20:4	10:4 39:13	<b>hydrocarbons</b>	17:20 24:22
23:18 30:1,4,	40:22	39:20	48:25 49:7
7 33:24 35:14	<b>heart</b> 43:13		51:15
39:2 50:23	<b>heat</b> 31:7		<b>including</b>
53:9	<b>heavy</b> 24:23		7:6,7,12,14
<b>handled</b> 32:15	29:3 39:20		19:10 23:11
<b>hands</b> 50:24	43:21 44:5		41:23 44:5
<b>happen</b> 14:18	52:5		46:1 52:5
16:7,8 38:17	<b>heel</b> 21:23		<b>incomplete</b>
40:4	<b>held</b> 3:15		27:10
<b>happening</b>	<b>helped</b> 9:24		<b>increase</b>
37:11 38:10,	<b>helps</b> 33:24		46:12,13
14	<b>heroin</b> 43:2		<b>increases</b>
<b>hard</b> 33:11	<b>high</b> 5:23		7:21 32:25
<b>harm</b> 19:19	24:23 31:21		33:3
24:5 26:8	39:21 43:22		<b>increasing</b>
<b>harmful</b> 39:24	47:22		22:13,16
<b>harming</b> 50:5	<b>highly</b> 36:12		46:11
<b>harms</b> 41:20	39:16		<b>indirect</b>
43:6 50:17	<b>Hoffman</b> 41:6		18:15 51:10,
<b>hauled</b> 37:1	47:6 50:21		19 52:1
<b>hazardous</b>	<b>hole</b> 23:7		<b>indirectly</b>
33:9 39:22	32:16		32:10
40:14 48:3,7	<b>Holly</b> 30:8,9,		<b>individuals</b>
50:2	18		3:10
<b>hazards</b> 24:2			<b>induce</b> 19:18
47:25			
<b>heads-up</b> 13:8			
<b>health</b> 8:11			
14:12 19:19			
26:1 27:25			
		<b>I</b>	
		<b>ice</b> 31:8	
		<b>Ida</b> 31:10	
		50:10	
		<b>identified</b>	
		42:16	
		<b>identify</b> 53:7	
		<b>identity</b>	
		27:21	
		<b>immediately</b>	
		25:1	
		<b>immune</b> 28:16	
		<b>impact</b> 46:10	
		54:8	
		<b>impacts</b> 14:11	
		48:10 50:4,10	
		<b>implore</b> 51:8,	
		12	
		<b>import</b> 17:13	
		19:20 21:20	
		24:8,9 25:10,	
		18 26:10	

<b>industrial</b> 15:18	<b>intention</b> 48:12		<b>language</b> 6:16
<b>industry</b> 21:11,23 22:11,19 24:10,15,16 25:1 26:11 28:22 33:3 37:13 40:21 42:11 44:9 45:8,9 46:24 54:5,17,18	<b>interactive</b> 3:24		<b>languages</b> 6:20
<b>industry's</b> 21:25 54:23	<b>interested</b> 37:23		<b>large</b> 38:7
<b>ineffective</b> 29:3	<b>interference</b> 5:2	<b>K</b>	<b>larger</b> 33:17
<b>inert</b> 43:23	<b>internet</b> 9:5	<b>Kantrowitz</b> 26:20 29:23	<b>lasting</b> 25:24
<b>inevitably</b> 19:3	<b>introduce</b> 13:15 20:12	<b>Kathie</b> 35:12 38:23 39:3,4, 7	<b>late</b> 21:18
<b>Information</b> 6:5	<b>inversion</b> 15:15	<b>Kavanagh</b> 3:1, 2 13:21 16:18 17:5 19:25 20:17 23:13, 22 26:16,25 29:20 30:14 33:20 34:5,25 35:3,10,20 38:21 41:3,11 44:12,19 47:4,13 50:19 51:5 53:5,17	<b>Laura</b> 31:12
<b>ingredient</b> 43:20	<b>invite</b> 13:2 54:23	<b>keeping</b> 48:16	<b>laws</b> 24:25
<b>initial</b> 21:25	<b>involved</b> 22:1 30:19	<b>key</b> 6:9	<b>layers</b> 24:21
<b>initially</b> 4:10	<b>iron</b> 28:10	<b>kill</b> 36:22	<b>leach</b> 44:4
<b>inject</b> 37:6	<b>irremediable</b> 42:7	<b>killed</b> 37:19	<b>lead</b> 33:12
<b>injected</b> 24:20	<b>irreplaceable</b> 26:13 27:16	<b>killing</b> 31:25	<b>leaders</b> 30:25 33:5,8,10
<b>injecting</b> 28:23	<b>irreversible</b> 32:2	<b>kind</b> 19:12	<b>leading</b> 31:10 32:1
<b>injection</b> 22:4,6 37:3	<b>irreversibly</b> 31:25	<b>kindly</b> 20:4 23:19 30:1,10 39:2 47:9 50:23	<b>leak</b> 14:16 25:20,21,23
<b>injections</b> 27:18	<b>Island</b> 20:25	<b>knowing</b> 39:11	<b>leaked</b> 31:15
<b>injury</b> 8:9	<b>issued</b> 25:14	<b>Kristen</b> 3:2 17:4 35:17 53:13	<b>leaking</b> 43:18
<b>inn</b> 28:5	<b>issues</b> 4:4 9:20	<b>L</b>	<b>learn</b> 37:11, 24 38:9
<b>input</b> 12:3		<b>label</b> 45:19	<b>learned</b> 30:20
<b>insanity</b> 47:3		<b>lack</b> 30:25	<b>leaves</b> 32:16
<b>insect</b> 31:20		<b>laden</b> 48:7	<b>left</b> 46:20
<b>instances</b> 33:23	<b>Jeff</b> 13:6,13, 19	<b>Lake</b> 35:25	<b>length</b> 25:17
<b>intakes</b> 38:8	<b>Jersey</b> 12:20 20:22 27:4 30:18 53:21	<b>land</b> 8:15 15:3,6,16 17:11,16,25 18:18,25 45:6	<b>level</b> 46:16
<b>intense</b> 46:15	<b>job</b> 14:5 16:9 23:10 33:15	<b>landowner</b> 35:25 38:16	<b>Liability</b> 49:5
<b>intent</b> 32:17 48:17	<b>join</b> 4:5,17 53:15		<b>lies</b> 25:12
	<b>joining</b> 3:23		<b>life</b> 18:8 30:23 39:17 52:23
	<b>judged</b> 40:19		<b>light</b> 17:15
	<b>jumping</b> 34:19		<b>Likewise</b> 51:12
			<b>limited</b> 17:21
			<b>limiting</b> 10:20
			<b>lined</b> 25:21
			<b>link</b> 5:6 9:3 10:3 11:25
			<b>linked</b> 27:24 43:13,22,23
			<b>liquid</b> 39:18

<b>liquids</b> 45:19 46:3	<b>low</b> 43:8	<b>media</b> 3:17 41:19	46:5
<b>list</b> 10:7,9 11:16 20:1 29:24 35:8 39:2 50:21,22 53:7	<b>lower</b> 30:21	<b>Medical</b> 41:19	<b>month</b> 41:24
<b>listen</b> 40:21	<hr/> <b>M</b> <hr/>	<b>meeting</b> 4:7, 8,9 12:10	<b>morally</b> 40:18
<b>live</b> 27:6 36:3 37:25 38:3 45:5 46:22	<b>made</b> 9:14 31:13 42:21	<b>meetings</b> 3:24	<b>moratorium</b> 21:8 42:19
<b>lives</b> 52:23, 24	<b>main</b> 42:2	<b>melting</b> 31:8	<b>morning</b> 20:25
<b>living</b> 46:6	<b>major</b> 52:3	<b>members</b> 3:18 21:15 27:5 29:13	<b>move</b> 20:10 30:4
<b>loaded</b> 45:17	<b>majority</b> 52:13	<b>mentions</b> 43:6	<b>movement</b> 13:24
<b>local</b> 29:1 36:23	<b>make</b> 16:1 23:10 26:11 31:3 39:23 53:18	<b>metal</b> 43:21	<b>mud</b> 37:18
<b>located</b> 6:22 10:12 31:14 49:9	<b>makers</b> 12:15	<b>metals</b> 24:23 29:3 39:20 44:5 52:5	<b>multi</b> 36:20
<b>log</b> 34:9 35:6	<b>makes</b> 45:22	<b>methane</b> 33:1 49:23	<b>multiple</b> 6:20 43:23
<b>log-in</b> 34:16	<b>making</b> 15:19 18:4	<b>methods</b> 17:24	<b>municipal</b> 29:1
<b>logged</b> 34:8	<b>manage</b> 28:19	<b>Mexico</b> 37:2	<b>Murphy</b> 41:6 47:7 50:25 51:3,7
<b>long</b> 26:9 35:8	<b>management</b> 7:3 8:5	<b>microphone</b> 4:10,12	<hr/> <b>N</b> <hr/>
<b>long-suffering</b> 46:4	<b>manganese</b> 28:10	<b>middle</b> 30:2	<b>names</b> 34:19
<b>long-term</b> 8:3 42:22	<b>manhole</b> 36:19	<b>miles</b> 36:3	<b>Nations</b> 30:20
<b>looked</b> 34:8	<b>manner</b> 11:4	<b>mill</b> 15:11	<b>natural</b> 37:20 45:8 47:17
<b>loophole</b> 15:24 17:17 42:23	<b>manufacturing</b> 18:3	<b>million</b> 38:2 40:9,11	<b>naturally</b> 28:3
<b>loopholes</b> 19:5 23:3 27:12 29:15 32:6 48:3,20 51:18 54:4	<b>Marcellus</b> 39:16 40:10 44:4	<b>millions</b> 27:17	<b>necessity</b> 19:1
<b>loss</b> 31:22 54:14	<b>mass</b> 32:1	<b>minimum</b> 40:8	<b>needed</b> 14:6 40:24
<b>lost</b> 31:23	<b>massive</b> 31:22	<b>minute</b> 13:1	<b>negative</b> 39:11
<b>lot</b> 22:7 36:25	<b>material</b> 28:5,13	<b>minutes</b> 10:20 37:25	<b>neighbor</b> 37:19
<b>Louisiana</b> 31:13	<b>materials</b> 24:21 26:7	<b>misdemeanors</b> 36:8	<b>nervous</b> 28:16
	<b>Matt</b> 27:3	<b>missing</b> 39:1 50:22	<b>net</b> 31:17
	<b>matter</b> 8:21 36:12	<b>mission</b> 19:11	<b>Network</b> 17:9 19:1
	<b>Matthew</b> 20:8 23:16 26:18, 21	<b>Missouri</b> 43:15	<b>Network's</b> 19:11
	<b>means</b> 16:10 17:19,20 32:21	<b>mixing</b> 15:18	<b>neurotoxic</b> 43:23
		<b>moment</b> 13:4 16:19,24 20:6,23 34:7	<b>Newark</b> 38:8
		<b>monitoring</b> 25:25	
		<b>Montgomery</b>	

<p><b>news</b> 21:3  <b>NJ</b> 9:9 38:8  <b>nonhuman</b>  18:22  <b>North</b> 12:23  <b>Northeastern</b>  38:11  <b>note</b> 13:9  42:2  <b>notice</b> 5:24  6:11  <b>notion</b> 45:21  <b>NRDC</b> 48:11  <b>number</b> 10:15  <b>numbers</b> 4:21  <b>nurse</b> 39:10  <b>NYC</b> 38:9</p> <hr/> <p style="text-align: center;"><b>O</b></p> <hr/> <p><b>O'MALLEY</b>  16:23 20:7,  10,15,19,21  <b>obvious</b> 22:7  <b>occur</b> 46:18  <b>occurring</b>  28:3 31:22  <b>ocean</b> 31:18  <b>October</b> 6:2  21:18  <b>offer</b> 4:1  11:3  <b>office</b> 47:18  <b>officer</b> 3:7,8  11:2,4  <b>Ohio</b> 22:6,10  <b>oil</b> 24:10  25:1 28:11,24  36:1,9 42:10  <b>online</b> 9:3  <b>onramp</b> 43:20  <b>open</b> 21:10  22:21  <b>opening</b> 36:19  <b>operation</b>  18:13</p>	<p><b>operations</b>  27:15 29:19  49:15,20,24  50:13  <b>opioid</b> 42:25  <b>opportunities</b>  49:19  <b>opportunity</b>  10:24 11:22  47:19 50:14  <b>oppose</b> 19:13  <b>opposed</b> 22:20  <b>oral</b> 3:10  4:19 5:8,13  8:22 9:1  <b>orderly</b> 3:9  <b>organic</b> 52:6,  10  <b>organics</b>  28:12  <b>organisms</b>  28:17  <b>original</b> 28:1  <b>outright</b>  23:4,10  <b>overlooking</b>  29:25  <b>overlooks</b>  43:2  <b>overseeing</b>  29:25  <b>oversight</b>  25:7  <b>oxidation</b>  14:21 17:22  <b>Oxycontin</b>  43:3</p> <hr/> <p style="text-align: center;"><b>P</b></p> <hr/> <p><b>PA</b> 39:8  <b>pages</b> 6:20  43:5  <b>paper</b> 24:13  <b>pardon</b> 11:15  16:18</p>	<p><b>parent</b> 54:7  <b>part</b> 3:11  5:5,12 6:8  9:12 11:10,13  16:14 36:14  49:8  <b>participant</b>  13:12  <b>participants</b>  13:10  <b>participate</b>  3:22 4:18,20  <b>parts</b> 31:16  <b>partway</b> 47:24  <b>passed</b> 24:25  29:5  <b>past</b> 50:8  <b>pathway</b> 18:9  <b>pathways</b>  51:22  <b>patience</b> 4:3  34:18  <b>Patriots</b> 36:1  <b>patterns</b>  46:14  <b>pause</b> 4:3  <b>peer-reviewed</b>  41:22  <b>Pennsylvania</b>  12:21 25:13  28:25 35:25  36:3,7 37:3  38:11,14,16  <b>people</b> 38:2  40:21  <b>Perfect</b> 47:15  <b>period</b> 11:16  <b>permanent</b>  21:4  <b>permanently</b>  42:6  <b>permission</b>  34:15  <b>permit</b> 25:13,  17  <b>permitted</b>  10:21</p>	<p><b>perpetuate</b>  49:20  <b>persistent</b>  26:7  <b>person</b> 39:9  <b>Petroleum</b>  24:15  <b>pets</b> 52:23  <b>PFAS</b> 46:1  <b>PFOA</b> 46:1  <b>pharmacies</b>  43:3  <b>Phd</b> 41:16  <b>Philadelphia</b>  38:8  <b>phone</b> 4:20,25  10:14,15  <b>pick</b> 30:5  33:25  <b>pipeline</b>  15:25 18:19  37:17  <b>pipes</b> 25:22  <b>pits</b> 21:25  <b>place</b> 42:20  <b>places</b> 14:20  22:11 37:2  54:19  <b>plague</b> 50:3  <b>plan</b> 7:1 8:8,  10,13 10:19  43:1  <b>planet</b> 30:22  31:25 32:2  33:13,18  <b>planning</b> 7:2  <b>plant</b> 15:11  36:23  <b>plants</b> 28:25  31:14 36:22  52:24  <b>plastic</b> 25:21  31:19  <b>platform</b> 3:20  4:17 5:4  <b>platforms</b>  4:5,9</p>
---	---	---	--

<b>playing</b> 15:7	<b>precise</b> 28:6	<b>processed</b> 14:3 26:3	<b>proposed</b> 5:17,25 6:11, 12 7:16,18,21
<b>PM</b> 8:24 10:5	<b>predicted</b> 46:17	<b>processes</b> 15:18	8:18 9:13
<b>PO</b> 9:8	<b>prepare</b> 9:18, 25	<b>processing</b> 17:21 19:21	12:8,10,12
<b>point</b> 25:9	<b>prepared</b> 11:14	32:12,22 40:1	17:10 18:1,24
30:23 40:5	<b>present</b> 29:24	45:3 51:25	19:14 21:18
49:17 53:2	30:6	<b>Prodigious</b> 42:5	26:2 27:9
<b>points</b> 32:3	<b>presentation</b> 11:5	<b>produced</b> 17:14 19:23	45:1 48:2,14, 15,18 49:9
39:14 50:16	<b>preservation</b> 8:5	21:20 22:13, 15,23 24:3	54:9
<b>poison</b> 38:5,6	<b>preserve</b> 8:11	28:6 32:14, 19,23 44:9	<b>proposes</b> 7:10,24
52:21,22 53:4	<b>press</b> 10:16	<b>producers</b> 31:17	<b>proposing</b> 6:25
<b>poisoned</b> 37:8	<b>pressure</b> 22:10 43:22	<b>products</b> 33:10 40:15	<b>props</b> 33:2
46:6	<b>preventing</b> 19:24	<b>Professionals</b> 41:17 42:16	<b>protect</b> 8:11
<b>poisoning</b> 36:9	<b>previous</b> 28:21 29:11	<b>prohibit</b> 17:10,13	14:6 16:1
<b>poisonous</b> 36:12 39:20	<b>previously</b> 22:1 53:8	32:12 51:9, 13,25	19:6 33:14
45:4,12,19	<b>primary</b> 3:8	<b>prohibited</b> 19:24 22:24	40:25 48:17
<b>poisons</b> 26:10	<b>prior</b> 7:20	24:9 49:16	<b>protecting</b> 47:24
<b>Policy</b> 25:8	<b>problem</b> 21:2	<b>prohibiting</b> 8:7,14 44:24	<b>protection</b> 17:12 40:5
<b>pollute</b> 18:11	42:5 43:4	<b>prohibition</b> 18:1 51:15	<b>protective</b> 24:25
19:3 47:1	<b>problems</b> 24:14 28:1	<b>prohibits</b> 42:23	<b>protocol</b> 45:25
<b>polluters</b> 33:9,11	44:8	<b>project</b> 14:21	<b>provide</b> 3:10
<b>pollution</b> 8:7	<b>procedural</b> 4:4	<b>projects</b> 17:15	4:13,19 7:2
17:19 18:6,9, 15 19:24	<b>procedure</b> 5:6	<b>promised</b> 21:5	11:7,22 13:3
31:19 40:3	<b>procedures</b> 5:11	<b>proper</b> 45:13	53:11
54:15	<b>proceed</b> 9:21	<b>properly</b> 25:5	<b>provided</b> 4:21
<b>populations</b> 31:20	13:1 39:3	50:16	5:3,7,8,10 12:1
<b>poses</b> 8:2	<b>proceeding</b> 3:7	<b>properties</b> 18:10	<b>providing</b> 5:13 42:23
<b>posted</b> 6:2	<b>proceedings</b> 3:19 9:10,25	<b>proposals</b> 41:1	49:18
9:3 11:18	<b>process</b> 6:6, 7,9 12:6		<b>provision</b> 8:14
<b>potentially</b> 45:18 47:1	14:16 21:16		<b>public</b> 3:4, 14,15,19 4:2, 14 6:6,12
<b>power</b> 15:10	29:5 43:19		8:20,22 10:2
19:5	50:3 53:1		12:2,6,9 13:5
<b>powerful</b> 33:1	54:20		14:12 19:9
<b>practically</b> 54:23			21:14,15
<b>practices</b> 54:18			30:17 32:24
<b>precious</b> 40:17			
<b>precipitating</b> 46:19			

42:10,14 52:4 <b>publications</b> 3:18 <b>published</b> 6:3 <b>pumped</b> 28:2 <b>purpose</b> 11:6 <b>purposes</b> 40:2 <b>put</b> 14:23 25:19 37:17	10:16 20:4 30:1 39:2 50:23 <b>raised</b> 10:11 12:6 30:3 33:24 39:3 50:24 53:9 <b>raising</b> 13:13 23:17 30:7 35:13 <b>Rao</b> 41:5 47:6,11,15,16 <b>rapidly</b> 31:20 <b>rate</b> 7:22 46:12 <b>react</b> 44:3 <b>reactions</b> 43:24 <b>read</b> 14:7 <b>ready</b> 53:14 <b>reason</b> 26:9 <b>receive</b> 9:1 <b>received</b> 12:3,9 <b>recently</b> 31:12 50:7 <b>recognize</b> 40:23 <b>record</b> 3:12 5:5,7,12 9:12 13:9 50:9 <b>recorded</b> 9:10 <b>recordings</b> 9:13 <b>recovered</b> 40:9 <b>red</b> 10:22 <b>reduce</b> 33:6 <b>reduction</b> 46:20 <b>refer</b> 45:17 <b>refinery</b> 15:11 <b>reflected</b> 48:13 <b>refuse</b> 33:8	<b>refusing</b> 37:5 <b>region</b> 22:18 27:17 <b>register</b> 3:18 4:16 6:4 11:25 <b>registered</b> 3:22 4:11,22 9:23 10:1,7 11:21,23 13:2 20:2 23:14 30:5 39:10 47:7 53:8,14 <b>registers</b> 6:4 <b>Registrations</b> 10:4 <b>regulation</b> 25:12 <b>regulations</b> 5:19,20 6:14 7:1,24 17:9, 13 18:24 19:8,13 21:5, 6,10,18 22:20,22 23:4,8 24:4,7 27:10 29:15 32:11,17,19 45:1 48:2,16 51:15,24 <b>regulatory</b> 19:16 <b>reject</b> 12:11 <b>rejoined</b> 44:14 <b>relabeling</b> 25:5 <b>related</b> 4:4 7:9 8:2,17 17:15 21:9,13 23:5 24:2 <b>relation</b> 24:17 <b>release</b> 17:20,24 18:15 40:2 41:24 48:8 49:1,2,22	<b>released</b> 24:21 32:9 41:21 <b>releases</b> 46:19 <b>rely</b> 27:6 29:13 <b>remain</b> 6:6 <b>remaining</b> 48:3 <b>remains</b> 42:4 <b>remember</b> 10:23 13:7,15 26:5 <b>reminders</b> 4:1 <b>remote</b> 4:5,8 <b>remotely</b> 3:15 <b>removal</b> 45:25 <b>remove</b> 34:15 <b>removed</b> 25:3 <b>report</b> 30:21 41:25 44:2 46:7,9 <b>reported</b> 50:6 <b>REPPA</b> 16:6 <b>represents</b> 42:9 <b>reproductive</b> 27:25 52:9 <b>repurpose</b> 42:12 <b>repurposed</b> 23:1 <b>request</b> 6:15, 17 9:6 <b>requests</b> 6:18 <b>require</b> 35:6 38:3 <b>required</b> 8:8 18:17 <b>requirement</b> 25:3 <b>research</b> 43:14 <b>reserve</b> 11:4 <b>reset</b> 16:24 20:14 23:19
<b>Q</b>			
<b>qualities</b> 19:6 <b>quality</b> 5:20 18:21 42:10, 14 45:15 <b>quantity</b> 42:6 <b>question</b> 11:10 <b>questions</b> 11:12,17 <b>quickly</b> 10:10 <b>quote</b> 45:13, 14			
<b>R</b>			
<b>Rachel</b> 23:16 26:19 29:22 <b>radiation</b> 26:1 <b>radioactive</b> 18:10 28:4,13 32:7 36:12,14 39:17 48:7 51:23 52:17 <b>radioactivity</b> 24:24 52:6 <b>radionuclides</b> 29:4 <b>radium</b> 28:13 <b>rail</b> 14:14 <b>rainfall</b> 46:14 <b>raise</b> 9:20			

34:2 39:6 47:9 53:12 <b>residents</b> 46:4 48:5,17 <b>Resolution</b> 6:24 <b>resource</b> 40:17 <b>resources</b> 7:4 8:6 47:17 48:5,18 49:15,18 50:6 <b>respectful</b> 11:3 <b>respiratory</b> 28:18 <b>response</b> 9:19 11:11,13 12:5,8 40:23 43:1 49:4 <b>responsibility</b> 26:12 <b>restrictions</b> 49:11 <b>result</b> 5:1 49:25 <b>return</b> 47:1 <b>reuse</b> 14:5 16:13 18:2 19:22 23:2 40:1 42:17 49:19 <b>reused</b> 32:22 52:1 <b>revise</b> 32:18 <b>Richard</b> 35:11 38:23,25 <b>rid</b> 36:19 <b>riddled</b> 51:18 <b>rightly</b> 49:10 <b>rise</b> 46:16 <b>risks</b> 8:3 41:20 42:23 43:20 <b>river</b> 3:3 5:17,22 16:15 18:11 21:12	22:8,19 32:8, 15 33:15 37:7,12,23 38:1,18 40:7 42:20 44:6 46:11,19,22, 25 47:23 50:5 51:8,11,14, 17,21 52:2 54:1,6,10,14, 24 <b>Riverkeeper</b> 17:9 19:1,11 <b>road</b> 40:18 <b>roads</b> 29:7 <b>rock</b> 43:25 <b>role</b> 3:8 <b>roulette</b> 15:7 <b>Ruin</b> 16:16 36:16 <b>rule</b> 12:8,15 <b>rulemaking</b> 3:13 5:25 6:8,9,11 11:18 12:14 <b>rulemakings</b> 12:16 <b>rules</b> 5:16 6:1,5 7:21 8:18 9:13 12:10,11,12 14:8 27:19 54:3,9,22 <b>running</b> 15:4 <b>runs</b> 15:16 <b>Russian</b> 15:7	<b>sale</b> 43:1 <b>salinity</b> 46:18 <b>Sally</b> 23:17 26:19 29:22 <b>salt</b> 29:6 39:21 <b>salts</b> 28:9 29:4 <b>Sandra</b> 38:24 41:4,7,15 <b>Sandy</b> 31:9 <b>scale</b> 31:23 33:17 <b>scheduled</b> 8:21 <b>science</b> 43:4 <b>Scientific</b> 41:19 <b>scientists</b> 31:24 33:5 <b>sclerosis</b> 43:24 <b>scope</b> 48:22 49:2 <b>screen</b> 10:13, 22 12:25 20:5 30:2 <b>sea</b> 46:16 <b>seconds</b> 34:12 <b>secret</b> 45:18 <b>Secretary</b> 9:8 <b>secrets</b> 27:22 <b>section</b> 48:14,15 <b>seeks</b> 19:6 <b>selfish</b> 40:20 <b>sense</b> 45:23 <b>sensitive</b> 29:9 <b>sensory</b> 28:17 <b>separate</b> 12:13 <b>serve</b> 54:4 <b>serving</b> 3:6 43:20	<b>sessions</b> 30:17 <b>set</b> 41:12 <b>setting</b> 45:5 <b>sewage</b> 28:25 45:22 <b>sewer</b> 36:21, 22,23 <b>shale</b> 39:16 40:11 44:4 <b>Shales</b> 36:1 <b>share</b> 12:25 46:3 <b>Sharon</b> 33:21, 22,25 34:3,9, 14,20 35:11 44:13,15,23 <b>Shell</b> 24:12 <b>ship</b> 14:17 <b>shockingly</b> 31:1 <b>short</b> 46:15 <b>shortly</b> 3:13 <b>show</b> 12:25 36:4 <b>shown</b> 26:7 <b>significant</b> 8:2 42:18,22 <b>Silver</b> 35:25 <b>similar</b> 4:8 49:1 <b>simply</b> 28:18 <b>simultaneously</b> 5:1 <b>site</b> 28:8 <b>sites</b> 43:12 <b>sixth</b> 32:1 35:24 38:15 <b>slurry</b> 38:4 <b>small</b> 40:12 54:7 <b>Smith</b> 20:8 23:16 26:18, 24 27:2,3 <b>smoke</b> 31:16 <b>so-called</b>
	<hr/> <b>s</b> <hr/>		



17:23 29:8 40:10 <b>soaking</b> 15:5 <b>social</b> 3:17 <b>soil</b> 18:7 <b>solution</b> 21:25 42:5 <b>solutions</b> 29:8 <b>sound</b> 13:17 17:1 19:16 20:12 23:19 26:23 30:10 34:1 35:15 39:5 41:10,12 47:9 53:11 <b>sounds</b> 44:20 <b>source</b> 27:16 <b>southeastern</b> 22:6 <b>Spanish</b> 6:10, 16 <b>speak</b> 3:22 4:11,16,22 9:23 10:1 11:24 16:25 34:11,14 50:14 <b>speaker</b> 13:5 23:15 28:21 33:21 38:22 41:4 47:5,7 50:20,24 <b>speakers</b> 10:8,25 11:21 13:8 20:2 29:21 30:5 <b>speaking</b> 27:5 30:19 39:9 42:1 53:22 <b>special</b> 5:19 7:24 25:5 39:23 48:16 <b>species</b> 31:21 <b>specifically</b> 4:9 24:9 <b>spell</b> 27:15	<b>spent</b> 53:25 <b>spewed</b> 31:15 <b>spike</b> 43:15 <b>spill</b> 14:15, 18 25:23 38:7 49:1 <b>spills</b> 18:20 <b>spinal</b> 43:13 <b>spoiled</b> 38:19 <b>spoke</b> 29:12 52:19 <b>spoken</b> 54:13 <b>staff</b> 9:17,24 12:3 <b>stand</b> 16:15 32:4 33:8 36:16,17 <b>star</b> 10:16 <b>start</b> 13:17 20:20 27:3 30:11 35:15 48:11,21 <b>started</b> 36:1 <b>starved</b> 28:22 <b>state</b> 3:18 6:4 11:1 22:7 <b>stated</b> 52:19 <b>states</b> 12:19 25:13 36:25 <b>stating</b> 30:21 <b>statutes</b> 49:3 <b>Steingraber</b> 38:24 41:5,9, 14,15 <b>Stevens</b> 35:11,13,17, 23,24 <b>stop</b> 16:16 20:7 47:2 <b>stopped</b> 14:21 <b>storage</b> 14:15 18:5 19:22 24:2 25:12, 15,17 29:16 32:13 40:1 42:4,17 45:3 51:25	<b>store</b> 28:19 42:3 54:20 <b>stored</b> 14:3 27:13 <b>stores</b> 18:14 43:18 <b>storm</b> 15:5 18:15 <b>storms</b> 31:9 46:15 <b>stream</b> 43:17 <b>streaming</b> 13:12 <b>streams</b> 15:5 <b>stress</b> 39:14 <b>strictly</b> 17:16 <b>stronger</b> 31:9 <b>strongly</b> 23:9 <b>strontium</b> 28:11 <b>studied</b> 52:13 <b>studies</b> 41:22 43:13 <b>stupidity</b> 16:17 <b>subject</b> 5:16 <b>submit</b> 5:14 9:6 <b>submitted</b> 9:2 <b>submitting</b> 5:6 <b>substances</b> 50:2 <b>substantial</b> 31:2 <b>substantially</b> 12:14 <b>subtle</b> 47:2 <b>sufficiently</b> 52:13 <b>sulfides</b> 28:10 <b>summer</b> 50:8 <b>super</b> 20:15, 19 31:9 40:10	<b>supplementing</b> 47:20 <b>supporters</b> 27:6 <b>supporting</b> 6:1 45:10 <b>supports</b> 19:2 47:2 48:11 <b>supposed</b> 29:1 <b>surface</b> 25:20 28:5 42:14 49:7 <b>surfactants</b> 24:22 <b>Susquehanna</b> 22:9 37:7,12 <b>Sustainability</b> 24:1 <b>synagro</b> 14:23 <b>system</b> 28:15, 18 54:15 <b>systems</b> 14:4, 25 28:16 36:21
<b>T</b>			
			<b>tables</b> 36:6 <b>takes</b> 43:5 <b>taking</b> 16:2 33:2 <b>talk</b> 13:15 20:11 23:18 26:21 30:10 34:1,15,21 35:14 39:5 41:7 44:16 47:9 51:1 53:10 <b>talking</b> 16:19 <b>Tambini</b> 20:25 <b>Tammy</b> 41:6 47:7 50:24,25 51:2 <b>tanks</b> 14:15 25:19

<b>team</b> 43:14	13:24 14:7	<b>translate@</b>	<b>unacceptable</b>
<b>technical</b> 4:4	25:6 39:9	<b>drbc.gov.</b>	27:10
<b>technology</b>	42:1 48:6	6:17	<b>underground</b>
42:8	52:20 53:16,	<b>translated</b>	22:5 28:2,5
<b>temperatures</b>	21	6:10	<b>undermined</b>
46:11	<b>today's</b> 3:4	<b>translation</b>	32:6
<b>temporary</b>	4:12 9:10	6:15,18,21	<b>undermines</b>
25:16	<b>toluene</b> 28:12	<b>transport</b>	32:17
<b>term</b> 48:24	52:16	29:16 42:12	<b>understanding</b>
49:2,6	<b>touched</b> 50:1	<b>transportation</b>	24:18
<b>terms</b> 34:13	<b>tours</b> 38:12	18:17 37:15	<b>undo</b> 19:8
48:22	<b>Township</b>	39:25	<b>unfixable</b>
<b>test</b> 10:18	14:22 35:25	<b>transported</b>	42:18
<b>testimony</b>	<b>toxic</b> 18:9	32:14	<b>United</b> 30:20
3:11 40:22	21:21,24	<b>treat</b> 29:1,2	<b>University</b>
<b>text</b> 5:25	24:19,22	<b>treated</b> 8:16	43:15
6:12	28:23 32:7	45:21	<b>unmute</b> 10:17
<b>thermal</b>	33:16 38:5	<b>treatment</b>	26:22 51:1
14:20,24	42:6 44:8	17:23 22:3	<b>unpredictable</b>
17:22	45:2 51:23	28:25 45:14,	42:7
<b>thing</b> 37:21	<b>toxicant</b> 43:9	24	<b>unregulated</b>
<b>things</b> 15:1,	<b>toxicity</b>	<b>treats</b> 18:13	16:5 43:2
19	24:11 44:1	<b>tremendous</b>	<b>unsolvable</b>
<b>thirst</b> 54:23	52:9,18	14:11	43:4 44:8
<b>threat</b> 19:13	<b>toxins</b> 52:5	<b>Trenton</b> 9:9	<b>untreated</b>
42:13,18 52:3	<b>traced</b> 43:15	<b>truck</b> 22:9	8:16
<b>threaten</b>	<b>tracked</b> 25:4	<b>trucking</b>	<b>update</b> 48:18
52:23	<b>Tracy</b> 13:7	14:13	<b>upper</b> 6:22
<b>threats</b> 42:9	16:21,23	<b>truckloads</b>	<b>upstream</b>
<b>time</b> 8:24	17:1,8	36:20	43:17
10:6,21 26:9	<b>trade</b> 27:22	<b>trucks</b> 15:24	<b>urge</b> 23:9
31:21 33:4	<b>transcript</b>	25:22 37:18,	32:4 50:15
35:5 38:20,25	9:11	20	<b>urging</b> 16:9
41:2 44:15	<b>transfer</b>	<b>trust</b> 40:21	<b>users</b> 46:21
<b>timer</b> 10:21	19:22	<b>turn</b> 4:13	<b>ut-oh</b> 34:3
13:1,17 23:20	<b>transferred</b>	10:22 34:6	<b>utilities</b>
34:2 35:16	26:3	38:7 49:21	18:3
39:6 41:13	<b>transfers</b>	<b>type</b> 14:25	<b>utilization</b>
<b>times</b> 22:16	18:14	<b>types</b> 3:24	7:3 8:4
37:18	<b>transition</b>	<b>typically</b>	<b>utterly</b> 52:20
<b>tipping</b> 32:3	31:6	10:12	
<b>titled</b> 24:13	<b>transitioning</b>		<b>V</b>
<b>Tittel</b> 13:6,	33:12		
19,20,23	<b>translate</b>	<b>U</b>	
<b>Tocks</b> 20:24	6:19	<b>ultimately</b>	<b>vanishingly</b>
<b>today</b> 3:22		21:22	43:8
5:13 9:23			<b>variety</b> 40:22

<p><b>vary</b> 28:7 <b>vast</b> 52:12 <b>vegetation</b> 18:8 <b>venturing</b> 53:25 <b>victory</b> 20:24 21:1 <b>video</b> 4:24 35:18 <b>viewing</b> 4:15 <b>Virginia</b> 43:17 <b>virtually</b> 3:19 <b>volume</b> 5:23 7:22 47:22 <b>volumes</b> 22:13,16 <b>vote</b> 32:18</p> <hr/> <p style="text-align: center;"><b>W</b></p> <hr/> <p><b>waiting</b> 16:7 <b>walk</b> 21:11 <b>warm</b> 32:1 <b>warning</b> 11:8 24:16 33:5 <b>waste</b> 14:2,3, 9,24 15:21,23 18:2,17 21:25 24:12,19 25:3,5,11,18, 22 26:1,12,15 27:12 28:23 29:2,4,8,17 33:9 36:19,25 39:16,18 40:14 42:25 43:19 51:11 52:3,4 54:12, 20 <b>wasteland</b> 22:6 <b>wastewater</b> 5:21,23 7:6, 7,8,12,14</p>	<p>8:1,16 15:8, 25 16:4,10,11 17:11,14,18, 21 18:5,10,14 19:3,21,22 21:19,21,22 22:2,9,12,13, 15,18,22 23:1,12 24:2 28:6,7,20,24 29:1,6 32:7, 12,13,19,23 40:3 41:24 42:4,8,13,17 43:5,7,8,11, 18 44:1,9 45:2 48:4,6, 9,13,20,23 49:13,20 50:12 51:17, 20,23 52:2</p> <p><b>Watch</b> 27:4 <b>watching</b> 36:2 <b>water</b> 5:19,21 7:4,5,7,10, 12,13,17 8:6 14:25 15:5, 13,25 16:3 17:11,16,25 18:2,7,15,19, 21,25 19:8,17 23:6 26:14 27:4,8,14,17, 20 29:18 36:4,6,10 37:10,14 38:3,6 40:6, 8,12,17,25 42:9,14,18 45:4,13,15, 16,17 46:6, 13,19,21,25 48:15,24 49:10,12,14, 17 50:1,6,13 51:13 53:20 54:10,14,19, 24</p>	<p><b>waters</b> 8:9, 11,15 42:22 49:6 <b>watershed</b> 17:18 18:11, 18,19 19:4,18 21:10,12,21 22:8,24 23:7, 12 27:7,13,14 29:10,13,14 32:8 39:25 44:25 46:8 51:11,14,21 52:2 <b>watersheds</b> 26:13 <b>waves</b> 31:7 <b>ways</b> 19:2 22:25 28:19, 22 42:6 <b>web</b> 6:20,22 <b>webinar</b> 3:20, 23 4:6,17 10:9 13:11 <b>webinars</b> 3:25 <b>website</b> 3:17 4:22 5:8,11 6:2,7 8:19 9:4 10:4 11:18 12:1 46:9 <b>weighed</b> 21:16 <b>weight</b> 40:14 <b>wells</b> 37:3 40:10 <b>West</b> 9:9 43:16 <b>Westman</b> 35:12 38:23 39:3,7, 8 <b>widget</b> 6:21 <b>wildfires</b> 31:9 <b>wildlife</b> 31:23 <b>William</b> 23:16 <b>wintry</b> 29:7</p>	<p><b>witches</b> 16:4 <b>withdrawals</b> 29:18 37:14 <b>withdrawn</b> 27:14 54:10 <b>withhold</b> 27:20 <b>WMGR123</b> 25:14 <b>work</b> 14:1 33:11 34:11 45:7 <b>workers</b> 24:17 <b>works</b> 37:16 45:8 <b>world</b> 30:25 <b>worse</b> 31:13 <b>worth</b> 31:11 <b>wrap</b> 10:23 <b>writing</b> 9:7 10:25 <b>written</b> 5:6, 10,14 8:23,25 9:2,6 24:5 47:20 <b>wrong</b> 40:18</p> <hr/> <p style="text-align: center;"><b>X</b></p> <hr/> <p><b>xylyene</b> 52:16</p> <hr/> <p style="text-align: center;"><b>Y</b></p> <hr/> <p><b>year</b> 25:14 47:21 <b>years</b> 21:7,17 22:17 25:16 30:21 31:1,3 36:2,5 37:8 38:12 39:17 46:7 <b>York</b> 12:20 38:13 41:17 42:16 47:18 <b>Youtube</b> 3:21 4:15,19 13:12</p>
---	---	--	--

---

Z

---

**Zoom** 3:20,23  
4:5,8,17 10:9  
13:10