# In The Matter Of: <br> CHEMOURS' DISCHARGE TO GROUND WATER PERMIT-BY-RULE APPLICATION 

September 26, 2017

JH Buehrer \& Associates



MR. HOWITZ: I'm going to open the hearing now. Let the record show that the time is 7 o'clock and the public hearing is now open.

This hearing is regarding Chemours'
Discharge to Groundwater Permit-by-Rule Application for the former DuPont Pompton Lakes Works Site which has been submitted to NJDEP as part of Chemours' proposed Hydraulic Surcharging Pilot Study to address contaminated groundwater.

This hearing was advertised in the Record newspaper on August 27th and in the Suburban Trends newspaper on September 13th.

My name is Wayne Howitz. I am the
Assistant Director of the Remediation Oversight Element in the New Jersey Department of Environmental Protection Site Remediation \& Waste Management Program.

With us tonight from DEP are Anthony
Cinque, Dave VanEck, Heather Swartz and Nicole Kozlowski. Anthony is the DEP case manager for the former DuPont Pompton Lakes Works Site. Dave is the geologist. And Heather and Nicole are both from the Office of Community Relations. Heather is the DEP Community Relations contact for this site.

Also, here tonight to give a short presentation on the Permit-by-Rule Application is Dave

Epps. He is Chemours' Project Director for the former DuPont Pompton Lakes Works Site.

This public hearing is part of the public participation process for a NJPDES Permit-by-Rule application which is established according to the rules in the New Jersey Administrative Code at 7:14A-15. The purpose of the hearing is to provide the public with an opportunity to be heard on the proposed permit action.

The Department will be accepting verbal and written statements tonight. Please note that verbal and written statements have equal weight; so if someone is not comfortable speaking, and just has a written statement prepared, they can either submit them back at the registration table or to us up here, and they will receive equal weight as verbal testimony.

The purpose of tonight's hearing is to receive your comments and concerns on the Chemours' Discharge to Groundwater Permit-by-Rule Application. would like to emphasize that we will be focusing on Chemours' Discharge to Groundwater Permit-by-Rule Application tonight, not the Hydraulic Surcharging Pilot Study.

Information on the Hydraulic Surcharging Pilot Study is available and the Implementation Work Plan which is available on the DEP's web page for the
former DuPont Pompton Lakes Works Site. The web address is provided in the handouts you received when you signed in.

We generally will not be responding to comments this evening. The Department will respond to all significant and relevant comments, both verbal and written, in a "response to comments" document that will be issued along with the final decision that the Department renders on this permit application. The permittee and each person who has submitted comments will receive an electronic copy of the final decision document with a response to comments section.

The final decision document will be placed on the DEP's and EPA's web pages for the former DuPont Pompton Lakes Works Site and at the local public library. Again, the web addresses are provided in the fact sheets that were given to you when you signed in. Please be sure to leave your email address with the registration desk if you want to receive an electronic copy of the final decision document. Anyone who cannot provide an email address, but does provide us with a mailing address, will receive notice from the Department of the final action.

Please note, that the public comment period began on March 26, 2017 and will end on October

26, 2017. The Department will accept comments received up to the close of business that day. Mailed comments must be post-marked by October 26 th.

At the table in the rear are the public hearing rules of procedure. There is a sign-up sheet at the registration desk, We are asking everybody to sign in. Again, if you don't wish to testify, but have written comments, you can submit them at the registration desk, there is a specific box designated for that purpose. Any person wishing to speak, must fill out a registration card. Heather and Nicole will be circulating around the hall with speaker cards, so if you haven't filled one out and you wish to speak, you can get a speaker card from them or from a stack of speaker cards on the registration table.

When I call you up, please speak clearly and spell your name for the record. We have a Court Reporter here who will be making a record of tonight's testimony. If speakers are speaking on behalf of a particular organization, we also ask that you identify that organization. If you have a copy of your testimony, please provide a copy to our Court Reporter.

We want to hear from everybody and we want to give everybody the opportunity to speak. In view of the time limitations, I am asking each speaker to
please limit their testimony to five minutes. I will be using a timer to set five minutes per commentator. I will notify you when your five minutes begins, when you have one minute remaining, and upon reaching five minutes. Individual speakers may only testify once until we hear from every person who is here and wishes to give testimony.

If time permits, and there is an opportunity at the end of the hearing, and a person wants to testify for a second time, if we can accommodate you, we will. We ask that you go back and sign a second registration card so we have those people identified. We are asking that all speakers and members of the audience respect the right of each person here to be heard.

This hearing will end at 9:00 p.m., or at the close of testimony, whichever occurs first. I will now turn the presentation over to Dave Epps, who will now give information about the Discharge to Groundwater Permit-by-Rule application. After the presentation, I will open the hearing for testimony.

Dave?
MR. EPPS: Good evening. My name is David Epps, I am a Registered Professional Scientist. I am with the Chemours Company, I am the Project Director
here for the Pompton Lakes site.
So why is the Permit-by-Rule needed? It's required for any discharge to groundwater by the Administrative Code. So anybody who has a discharge to groundwater, like ours, we have to get a permit for it. When you change the location of where that water is being discharged, it requires a change in the permit, you need a Permit-by-Rule to do it; and if that discharge is greater than 180 days, you need a Permit-by-Rule to do that. All of those things are part of what our permit application is for.

We have an existing discharge system at the site, and it's under the NJPDES program. It's for treating groundwater from the pump and treatment system that's on site that acts as a containment system. It's permitted, like I said, under the NJPDES program. That water, then, is treated, it goes to twelve individual infiltration beds, or galleries, that are, approximately, zero to ten feet below the ground surface, it's a gravity discharge system, it's not under pressure.

That discharge system, from an engineering standpoint, if any of you are engineers, it is 14 square feet of open area, of the piping, it's been operating since, approximately, 1998. And where they
discharge to is beds along Barbara Drive. And at the end of Barbara Drive, along the railroad tracks, there is a series of beds out in what was called the soccer field. The discharge operations do have an effect on the local water table. Groundwaters at elevations are measured directly adjacent to the galleries, or the open -- or the pits that the water goes into, and that during times of increased precipitation, like we have seen here over time, the water table elevation does rise. We measure that rise over time and we keep track of it. We measure those things on a monthly basis and we report that information back to the DEP.

So this is a figure that shows where the infiltration galleries are. So we have a series of discharge basins, those are the ones that are out on the soccer field, those are the ones along Barbara Drive. We do -- those are the wells that we monitor on a regular basis for the water table elevations, and it's important to us to monitor those so we know how groundwater moves.

As I said, we do monitor these wells even during times of high rain events where you would expect to have a lot of groundwater infiltration, and you can see the yellow line here, this is during a time where we had a lot of rain in 2011. You can see from the
yellow line that we had a very sharp increase in rain. And then these are the wells that are out there that we monitor on a regular basis, and you can see that when the rain starts, as it increases in intensity, the water table does rise, and as it falls down, the water table comes down with it.

Even during the time when we were told that in 2011 we had some of the most intense rain here, that elevation of the water table never got to where it would impact the residences along Barbara Drive or on the other side of the railroad tracks, I believe that is Durham Street.

So our Permit-by-Rule application for this, what we are applying for now, is to treat groundwater from a site pumping system into, essentially, a horizontal well. Most wells that people think about are vertical. This well is going to be turned on its side. It is, approximately, 1,400 feet long. It will be installed from anywhere from 20 to 25 feet below ground surface. So that water that is going into the subsurface is down in and put in at that depth versus the depths of where we operate at now, anywhere between 10 and 15 feet below ground surface.

Its discharge is into the same geologic formation that we discharge to now. The effective
discharge area, which is the area that the water comes through again, which is, approximately, the same as what we have currently. The water table elevations will be monitored during the operation of this pilot study. We do it for the same reason we do it for the old system, or the existing system, so that we can see what response the water table has, to not only the water that's coming out of the well, but also in response to rainfall. We are going to pilot this system for a period of, approximately, a year.

One of the things that we have heard is that as the water table elevation rises, that there is a big concern about that, and rightfully so, but what we have in the system designed into it are some fail-safes that allow us to divert the water from the horizontal well back to the infiltration galleries, if that rise in the water table gets to a level that we would deem unacceptable.

So this is a picture, and it's in your handouts, probably, better, the horizontal well will run along the railroad track. There are a number of points where the water table will be monitored directly, adjacent to the well, on both sides of the well, so that we can understand what is happening as that water goes in.

Prior to submitting this Permit-by-Rule Application, we looked at the operation of our system that's been operating for -- since 1998, and we have a lot of real-world information to use as we look at the response to the aquifer or the soil beneath your feet, what it will do when that water comes in. We know that from a standpoint of the science end of things, that we look at three distinct things. We look at permeability, which is the ability of material to allow fluid to pass through it. We look at gradient, we look at -- that's the slope of the water table. And we look at hydraulic conductivity, which is, again, a measure Of a material's ability to transmit fluid. All those are important things. And as you think about it like pouring a bucket of water on the sand at the beach and you see that water, sometimes it goes down very quickly, and sometimes it doesn't, and that's a measure, essentially, of those three properties of the sand, or any material that you look at, for the properties of how water moves through a material.

We have established and measured these things through a number of, what we call, pumping tests. We put a well into the ground, we pump it, and we look at the response to the water table in the aquifer, and you can measure what those properties are
by doing pumping tests that way. We've used the data from over twenty years of operation on our current system, which is discharging the same water at the same rate into the same geologic formation, so we have actual measurements of what happens.

We also have the monitoring wells we talked about earlier that are around our existing system, and we can go back in time and we can look at when rainfall happens, what happens to the water table, and we can do that since the system was put in.

We know that basement slabs are, typically, nine to ten and-a-half feet above the water table, and that based on the computer modeling and the real-world applications that we measure on a monthly basis over the last twenty years, that the model that has been developed for the existing system, and as we use it as a predictive tool for this system, we know that where that horizontal well lies in the ground, directly above that well we see about a two foot rise in the water table, And as you move away from the center line of that well, the water table rises about a foot and-a-half.

And at the pumping rates that we operate at now and that we propose to operate at, that's what we have seen out in the real-world, and that's what our
predictive model tells us from all the model runs we have done, and we have varied characteristics of the aquifer in those model runs to see whether or not we are off by a factor of ten what will happen. We look at if the gradient increases, what will happen, and this is what we see.

What I want to leave you with, this is a lot of technical stuff that's in your handouts, but what $I$ want to leave you with is a, essentially, a comparison of our operating requirements now and the operating requirements under this Permit-by-Rule. If you look at it, it is almost identical. We monitor flow into the galleries now. We will monitor flow to the horizontal well. We inspect our system components, we do it daily, I think our permit doesn't require us to do it on a daily basis, but we do. We measure groundwater elevations on a regular basis, and that's what we will do here as well. We would have to meet the New Jersey DEP discharge requirements for that water which is a drinking water requirement. We have met that since the operation of the system. We provide quarterly reports to the DEP on the operation of our system and of all the data that we collect. We have to maintain the system components, and not as much as a requirement of the permit but more as a requirement of
the system. If the system isn't maintained right, it doesn't operate right. If it doesn't operate right, then we have to go and figure out why. So by maintaining the system components, clearing the wells, cleaning the lines, cleaning the beds, we maintain the optimum performance of that system so that it reacts as our groundwater model would predict it to.

The last thing we have is the requirement to operate in accordance with the permit. There are a number of requirements, a lot of them are on this slide, there are others. Those requirements are transferred directly to this permit application as well.

And With that, I am finished.
MR. HOWITZ: Thank you, Dave.
Now we will be hearing questions and comments. Audience members who have already filled out speaker cards will be given the first opportunity to speak. When I call your name, please step up to the microphone and give your name. It would help the transcriber if you could spell your name; and if you are representing any organization, please, let us know. Please try to limit your questions and comments to under five minutes. I am using a timer, I will notify you when you have one minute remaining and upon
reaching five minutes. If time allows, you will be given the opportunity to make additional comments, but only after everyone who wants to testify has had an opportunity to speak.

Heather and Nicole will be circulating with blank speaker cards; so if you decide you want to speak, please fill out a speaker card, and you will be placed on the list.

Again, the first speaker, or the first commenter, is Greg Cockefair. Can you spell your name?

MR. COCKEFAIR: My name is Gregory Wayne Cockefair, $C-0-c-k-e-f-a-i-r$. I live in town, and I am quite concerned about this town. I am also part Native-American. My family hails from this area for thousands of years. You have a universal problem, not only you, but there are many other communities that have chemical problems, they really do need to be solved by this generation of people. And I speak for the millennials who are here to do this change, and it is my prayer that in some way we will be able to make Mother Earth, my life, because I'm also ashamed, my life, pure again, so that the waters may flow and the air may just be breathable and just drinkable. And the mayor, who $I$ know very well, $I$ just pray that this be done right, but, also, I pray that this be done,
period.
And we really do have to exchange one life to another, life of pollution to a life of purity, and that can only be done with we the people of the United States of America, all of us. That's all I have to say. Thank you.

MR. HOWITZ: The next speaker will be Ken Doka.

MR. DOKA: That's all right. The next person can go ahead.

MR. HOWITZ: You pass?
MR. DOKA: Yep.
MR. HOWITZ: Ms. M-u-c-d-e-r? Let's start over with $M-u-1-d-e-r$, are you here?

Frank Jaconetta?
MR. JACONETTA: My name is Frank, $\mathbf{F - r - a - n - k}$, Jaconetta, J-a-c-o-n-e-t-t-a, Councilman here in Pompton Lakes, lifelong resident. Thank you, it's good to finally see you here. The first thing, the slide presentations, does anyone have copies? Can I look online? It is lengthy, and I'd like to have it, if you can provide that, $I$ would appreciate it.

The main question $I$ just want to ask, I had several residents contact me, right, that can't be here tonight, they got other things going on with their
children and everything else. And it also concerns me too, as well as it does them, as representative of the town, that before any work begins that you give approvals to DuPont, $I$ want assurances, $I$ don't care what Dave Epps or anyone else says, I want assurances by DEP to force DuPont before any work begins that if anything happens to anybody's house, any flooding, anything happens, that they are going to take care of it. I don't want to learn afterwards when something already happened that they have to come to me or the Mayor and say, listen, my house is flooded, what do I have to do next? They have to contact you, they go around and around, have to take pictures and put in, you know, different things with the insurance companies, have to provide your insurance company, your insurance company, this is all nonsense.

If you are going to put that in the ground, before you do, $I$ want assurances for the residents. I am their representative. I'm asking for it. I'm demanding that before any work begins, I want assurances for all the residents, my friends and neighbors, my family, that before any work begins that you will cover anything that happens to any of our houses. Anything. That's all I have. Thank you.

MR. HOWITZ: Thank you.

Our next speaker is Bruce Foote. Can you spell your name?

MR. FOOTE: My name is Bruce Foote, F-O-O-t-e, I'm a resident of Pompton Lakes. I'm not in the plume area but I'm concerned.

A couple of key questions that $I$ developed from the readings online. There were -- liquid conductivity of soil can be quite variable, nonhomogeneous and only sporadically sampled and tested. You might want to have more sites tested, because I understand soil is sometimes in some areas clay has been pretty processed and so forth. I understand that there are only four Piezometers -- is that how you say it -- the monitoring stations on the north side of the right of way, there are only four, and those are only going to be measured twice per week during the startup and during the flow rate ramp-up.

I think maybe -- you folks know what the response time of the aquifer is, however, the consequence of missing and having water rise in the basements or getting along and reduce the VOC capability is of serious concern, so maybe we want to measure more often in the beginning and at more locations. A thought I had, maybe automated basement monitoring in each residential building similar to
those in the inhouse water usage metering used by the MUA, where an authorized vehicle can drive past and read them. The local Optimum WiFi, it's throughout that whole area so you have a basement monitor that sits on the floor ready to detect water coming in, just as an assurance of that, it can't be that expensive in quantities, and it is hooked up to the local WiFi. Heavy rain has an impact on the aquifer elevations and also the VOC efficiency based on elevations, that water coming up, I am told, challenges the VOC readings.

Second point, I recommend not destroying the leaching fields until long after approving the hydraulic surcharge operations, through start-up, flow ramp-up until limited by either permit or flow rate. I am suggesting that as a fall-back position in case the well misbehaves, you should be able to divert back to the leaching field and keep that flow going so it stays clean, and you have that reverse flow back towards Dupont continuing to operate as opposed to losing any going forward. Past requirements to purge the leaching fields of buildup of magnesium crystals from the pumping stations may also develop clogs or clots or residual solids building up in the surcharge well.

This filtration of the flow is expected to prevent solids or sedimentation buildup, or will there
be a necessity for a disassembly or maintenance accommodations to be built into the well in anticipation of the well failing and having to be cleaned out before it can restart and then divert that flow back to the leaching fields meanwhile and then re-bring it in. I didn't see anything in the data about anticipating being able to pull that high pressure line out of the system, coil it up, clean it, purge it out, and slide it back in. Is there an anticipated method to clean the 2-inch by . 012 inch slots along the well in the event of unexpected surcharge. It's like putting a plug -- pig in there, and running it down and causing flow through those slots to clean it out so that it's ready to reset the vibration line.

Those are a couple of the questions I had about monitoring often enough to give these people the assurances that you're are not going to challenge their basements so they can sleep at night as opposed to running down every 10 minutes and checking their basements to see if there is water coming in. Because if that water starts coming in, guarantee it pollutes their entire basement and all their belongings and everything else, so that's it.

How much time did I take?

MR. HOWITZ: By this clock, you have thirty-two seconds left. Thank you.

Out next commenter is Vojo Cogura. Can you spell your name.

MR. COGURA: My name is Vojo Cogura, I live on 76 Barbara Drive, V-o-j-o, $C-0-g-u-r-a, 76$ Barbara Drive, Pompton Lakes.

I've been a resident of Pompton Lakes since 1993. I live across the street. They started with the first phase of the pump and dump system, or what the hell they had going on. They put over four billion gallons of water underneath our homes for the last twenty years. I don't know if you people understand how much water is in the ground, it's 200 million gallons a year times twenty, that's four billion gallons of water. Okay. There are six wells that they pump out, because Dave Epps, I was with him at an arbitration hearing and he didn't as a professional know how much water comes under my house, okay, that was on August 1st. He's a geologist. And my calculations that went under my house, okay, in ten years. First thing is '97 to 2007, was 300 million gallons of water (inaudible), that's in ten years. Now, ten years later, my wife developed cancer and she died one year later, okay.

Now, another ten years -- not ten, that was 2010, I'm sorry, now we are going another seven years. This is twenty years of pumping and dumping underneath those homes. Okay. What are they going to do next? They are pumping behind my house, before it was in front of my house in the field, and now it's behind my house, and now that field have people there. God bless the people that are going to be living there that have water coming into their house, $I$ feel sorry for you, because you continue to let these people dump on us like they have been doing, and allowing the state and the Government to let them do it, they should be arrested for murder. Because there are a lot of people sick around my neighborhood. My next door neighbor is sick. She is suing them. The guy behind us on the tracks, right over 300 feet away from me, his wife just passed away, she was fifty-four years old, same stuff my wife die from. You know, two, three doors over, Mr. Brown, he was about seventy-four years old, brain cancer, two times operation. The guy down the street at the end of my block on Barbara Drive, fifty-four years old, liver cancer. Okay. This is the stuff that is directly affected by DuPont and what they did to us, all right, there's a lot of people sick over here, a lot of people.

Let me explain to you, in one year, okay, in one year, thirty million gallons of water they put underneath my house, okay, it filled up my swimming pool, which is a built-in pool, sixteen feet wide by thirty feet. Okay. Three times in one day, that's how much water comes into my house, okay, three times a day I have to pump my pool out, twenty-four thousand gallons, seventy-five thousand gallons of water coming underneath my home a day. Am I supposed to feel safe about this, it's contaminated water, it's not drinkable water. I wish that son of a bitch would have drank the water, he's telling everybody here drink the water. The last time at the meeting I gave him water to drink, he wouldn't drink it. The people who were here were too scared to drink it.

I don't mind jumping over a fence. I don't mind getting arrested. I will jump over there any day for anybody here, okay, to test the water, because that's what they're doing, they're pumping dirty contaminated water, treating it and pumping it underneath our homes. How would you feel about wearing a pair of pants that were dipped in oil and they were washed, would they smell the same? No. They think nothing about contaminating the whole neighborhood. Pompton Lakes is a beautiful town, beautiful people
here, it's a working class community, working class community, we are getting dumped on by them, and they don't -- we weren't even notified the first time around. Whatever they were doing and reporting on the soccer field, looked like a spaghetti bowl what they did over there on the soccer field, $I$ used to play on the soccer field, my kids played on that soccer field. It was a spaghetti bowl what they did. I asked the guy where is the drinking water, you know what, that's your drinking water. I'll make a special Kool Aid and I will send it down to Maryland to where they are at DuPont, where they issue all that funding. Why don't they take their water and stick it over by them. Why do they give it to us? We got it underneath our homes, now all of a sudden you want to tell us ten years later -- after you've contaminated us for ten years, then all of a sudden we have a problem with our aquifer. After ten years of dumping nobody says a thing, but ' 97 to 2007 , nobody said a word, nobody knew nothing about it. How come ten years later they tell us we have a problem? Because they've been dumping the whole time and they knew about it, and they did nothing but contaminated our water wells and our homes, that's all on them, they did it.

Let's be careful, be careful of what you
are buying into, be careful of what you sign on for, because this is going to be a problem.

MR. HOWITZ: Thank you very much.
Donna Patterson -- Dana Patterson, I'm sorry. Again, my apologies.

MS. PATTERSON: Hi, my name is Dana
Patterson, $D-a-n-a, P-a-t-t-e-r-s-0-n$, and $I$ 'm a member of the Pompton Lakes Community Advisory Group.

I want to thank you for accepting my public comment today. Just a point of question before I start providing my comments, the public notice claim for the comment period started on March 26, 2017 and that's what DEP currently has on their website, and I believe that is an error, and $I$ just wanted to make sure that that is corrected because that is very misleading.

So, in addition to some of the concerns by the residents and Councilman has already raised regarding flooding insurance and risks, I would like to identify two technical concerns. The proposed pilot study claims that water will be discharged at a rate of 120 to 140 gallons per minute, surcharging would increase the groundwater flow at the higher permeability interval of the local shallow aquifer. From DuPont's proposed plan we can deduce that they are
trying -- they are relying on simulations to conclude that their activities will not flood the basements.

Their model includes many assumptions and raw data that is not disclosed to the public in the pilot study plan so we have no idea if they are assuming that infiltration will occur homogenously along the pipe or some areas will experience a much higher flow. This information is absolutely critical. We are requesting that the supplemental information be made available to the public before the close of the comment period. The pilot effort should not be able to significantly modify water levels, yet, added water pressure and rise of the water table could affect homes and infrastructure. We are calling for water level sensors to be deployed in monitoring wells to continuously monitor water levels in order to confirm that water levels will not be impacted by this effort. Additionally, to establish a baseline comparison while the pilot effort is underway and to confirm that the mitigation objectives are being met, we are calling for an evaluation of the mitigation system performance before the pilot effort begins. The water levels in and adjacent to the buildings should measured and documented at an appropriate space and frequency. The current proposal includes a relatively
low frequency monitoring schedule of about two times per week and then monthly; however, we are recommending that this be an automated high frequency alert -- with an alert level be established so that actions can be taken with sufficient time levels to prevent any adverse effects or impacts.

Another point that $I$ am raising is, regarding Pompton Lakes sitting on the top of the Ramapo fault line which forms the boundary between the Highlands and the Piedmont Provinces. There was a 2015 Passaic County Disaster Mitigation Act and 2000 Hazard Mitigation Plan Update for Passaic County -- that's the name of the report -- that came out that said that the Ramapo fault is the most seismically active fault in the region. It continues to say that the probability of damaging earthquakes affecting the Passaic County area is low; however, there is a definite threat of major earthquakes that could cause wide-spread damage and casualties in the County and throughout New Jersey. Furthermore, the report discusses a link between increased earthquake activity and climate change saying that secondary impacts of earthquakes could be magnified by future climate change. Soils saturated by repetitive storms could experience liquefaction during seismic activity because of the increased saturation.

So I am asking you to please include this information, how would a natural disaster such as an earthquake like this affect the horizontal well? What would be the impact on water and gas lines since we are on the Ramapo fault. Will this increase flooding? Will this cause a pipeline rupture? What will happen? We need to know the risks of that.

Another question I have is the proposal includes infiltration near the railroad tracks --

MR. HOWITZ: One minute.
MS. PATERSON: -- yet, due to the extreme compaction in these areas for maintaining structural integrity, which is common in railroad track areas, the hydraulic conditions tend to be less than ideal, and so we need to understand how this area near the railroad tracks, where it might be an area where you don't commonly monitor, how does this compaction impact the hydraulic flow and it has been recommended that areas near railroad tracks are generally avoided because models cannot always predict what happens in these areas in these unknown soil structures.

Thank you for taking my comments.
MR. HOWITZ: Thank you very much.
Cheryl Rubino? Can you spell your name, please.

MS. RUBINO: Cheryl, $C-h-e-r-y-1$, last name is Rubino, R-u-b-i-n-o. Resident of 140 Perrin Avenue, Pompton Lakes, New Jersey. I live one house off the railroad tracks. Pat Corcoran at 142 Perrin Ave is right next to the railroad tracks, okay, so, first, let me start by thanking the EPA, because I have been nagging them since 2012 for this hearing, and, also, Heather Schwartz, wherever you are, thank you. I appreciate you granting this hearing. I also want to thank Councilman Jaconetta, you speak for every one of us when you said what you said.

My biggest concern, and I have said it since day one, is the fact that my house can flood. They have never, ever, ever tested the elevation or the water level or the soil or the rock or hydrogeology or geology whatever the heck you want to call it under the residence, at all, ever, so $I$ have no idea where that shallow ground water aquifer starts, number 1 .

First and foremost, if there is a, quote/unquote, a fail safe, and DuPont has no worries at all, they should be providing the residents a policy to ensure them that nothing will happen. If they are that $100 \%$ sure that this is going to work, they should not have a problem stepping up and protecting the residents, at all.

Dana brings up the earthquake and the Ramapo fault line, we just had one yesterday, 1.5 magnitude in Morristown, okay, so there's majors concerns what will the fault line do to this surcharge well, let's just -- I mean right in the newspaper, okay? Let me just continue on real quick.

So how would that natural disaster work? Okay. I have actually tried to protect myself, there is no way for me to protect myself with an insurance policy. I have called every, every, every agency, including, Lloyds of London and State of New Jersey insurances, there is no way for me to get my own policy.

The groundwater modeling that was done in this study was not accurate, they did not provide all of the data in the plan that they posted on the EPA website. It has not been made accurate. There are assumptions on that. Assumptions should not be used when residents are at risk, period, end of story.

Ongoing -- and I'm going to reiterate what
Dana said -- ongoing testing and monitoring of the water levels and measuring mitigation systems effectiveness must be done at an individual resident's property before any, any of this is done and during the study. Alarms must be used at each and every
individual resident's homes during the monitoring level, and they should automatically shut off if the water table rises above a certain amount. At a minimum, this needs to be done for every home between the well and the lake, every home from the middle of Durham Street at the end of Barbara Drive all the way to Grant because that's the length of the well.

Moving along here. The bottom line is that $I$ don't feel safe. I don't feel that my mother is safe. I'm not comfortable with this plan moving forward, at all. And the bottom line is you should listen to the residents. We are not your guinea pigs. We should not be the first ones in the state of New Jersey or in the nation to be put through something that has not been proven. We know bioremediation works, they tried it, they tested it, some actually came back, go that route instead of the groundwater. MR. HOWITZ: Thank you.

Jefferson LaSala?
MR. LASALA: Thank you. I'm Jefferson
Harman LaSala, J-e-f-f-e-r-s-o-n, H-a-r-m-a-n, L-a-S-a-l-a. I'm on the board of the Pompton Lakes Residents for Environmental Integrity and I'm on the board for the Pompton Lakes Community Advisory Group. I'm also a resident in the plume on Orchard Street.

I want to first thank the DEP because they did something that $I$ 've been trying to get the EPA to do now for several years which is they sent individual letters to residents through regular mail to inform them of this meeting. And I think that the amount of people in this room is testament to what I'm trying to get the EPA to understand, for a, for a very long time, is that many of our residents don't know about this situation. We had a Pompton Lakes Community Advisory Group meeting just last week, and the people present at that meeting had no idea about this study at all, and that's unacceptable.

However, I also want to admonish the DEP on the fact that they are only just now doing a public information session on this. The DEP has not been present at a public meeting in this town for a few years now. This is an issue that is affecting all of our lives, our properties, the value of our homes and our health. It is completely unacceptable that we are having an information session and a hearing on the same evening. We need to have time to process the information, to ask questions of technical experts. Yes, we have had some of that time but not as the gentleman from DuPont explained to us tonight to ask him questions specific to what he said this evening.

We are being asked to make a formal public comment with little time to process what we were told, and I think that is unfair.

I would like to thank Councilman Jaconetta for his excellent words and I would also thank Dana Paterson, Cheryl Rubino, and Vojo, and I completely stand behind them what they said, and the other residents who have spoken so far, I applaud them for speaking.

If DuPont is submitting quarterly data, why isn't that on the DEP website? Why aren't we allowed to look at that? The supposed responsible party knew about vapor intrusion in 2001 and did not inform the residents for another seven years. During that time we were told -- we were told that the pollution was essentially cleaned up, that we were not living in an affected area by the plume area, and that we were encouraged and coerced to sign releases in lawsuits by which now we cannot hold them accountable and, yet, somehow that's acceptable to them because they are now not going to provide insurance.

I would like to add to what Cheryl said, should not just be the homes along the well, it should be all the homes along the well and then moving forward to the lake, because that's where the water is being
directed. I can't see into my basement, so the last thing that $I$ want is to have contaminated water coming up into my basement that has anything to do with VOCs. We put the vapor mitigation systems on in order to help alleviate this problem, now we are going to bring the actual contaminated water into our homes, potentially. It's completely unacceptable that there is not a full contingency plan and not full insurance protection about this.

I don't feel safe in my own home, I
haven't for a very long time, and I have spoken on behalf of the residents of this town in the news, on podcasts, on radio, in these meetings, countless meetings like this, and I have to say, I'm tired of it. Enough already. This polluter is (inaudible) taking up enormous amounts of time. We keep calling them the responsible party, it's thirty-five years that the DEP admonished them to clean this town up, 35 years, that's enough time for a child to be born, and then to go through every level of school, get married, get a PhD, have several children, this is ridiculous.

In the meantime my mother died of diseases that were connected with these contaminants and my brother has to undergo a very serious life threatening illness that was a precursor to a very deadly form of

Leukemia, it's called Myelodysplastic dysplasia, and had the Leukemia developed he would have been dead in six weeks. He was told by a doctor at sloan-Kettering that he was this sick, because he had grown up near a factory, well guess which one he grew up next to. It's been a million dollars in his health care costs, a million dollars for his health care. He is still not one hundred percent. His immune system has not returned a hundred percent. This was six years ago since he had the transplant. His 14-year-old daughters have never seen him healthy.

I will not stand by and allow this company to whitewash this permit as if it's all okay, everything is a hundred percent, it's not. And I stand by the residents in my town, and I'm saying emphatically that DuPont has to give assurances to us financially -- what they really need to do more than anything, which I've been calling for, for a decade now, is buy us out. There is testament in this town for that buyout plan under the (inaudible) former mayor. There is reason to do it to this day. We should have been taken out of our homes and put in safe housing the second the plume was known about, but now it's seven years later. Anyway --

MR. HOWITZ: Time is up. Thank you.

Ruth Paez.
MS. PAEZ: I'm Ruth Paez. $R-u-t-h$, P-a-e-z. I live at 228 Schuyler Avenue. I am a resident. My husband is the one that have been living here for 50 years. His family (inaudible).

The problem is that since we have been living here he never had had any flood in the basement. After Sandy, like, weeks later, more or less, it started raining, he started having flood that he never had. Another thing is that as Mr. LaSala said, my husband's mother and father died of cancer as well because of all the pollution in this town.

So in reality why I'm here for, really, I didn't want pump-and-treat system VOCs with water traveling through a pipe next to the railroad tracks near to my home. I am also concerned about the damage it could do to my home and the additional exposure to poison my family. I am strongly opposed to moving ahead with this permit or this discharge to groundwater without a 24-hour a day monitoring system, without the proper analysis being done on each and every vapor mitigation monitoring system to see if they will -- if they will even work to reduce the TCE and the PCE in my home during the length of this discharge to ground water.

What guarantee or what ideas does my family have, not only my family, all the people that we see in here, that we won't be exposed to Chemours contamination, that our homes will not floor or will not have structural damage to our houses or homes? There is no guarantee about that, because they have been talking over here and have been quiet already since the study, that is not a study anymore because it's going to be done. If this discharge of groundwater continues to move forward, each and every resident should have been given the option, safe housing option, or an insurance that exists for this type of situation we are having right now, at no expense to us until such time it is safe to move back into our house knowing it's going to be in contamination. So my question is, if each and every home in the toxic plume, including ours, is evaluated, because we don't know exactly what is going to happen, if it's going to flooded or not, so we don't need an evaluation, how do $I$ know that it's going to be flooded in the basement (inaudible) that is regardless of the vapor intrusion system installed that we have? That is my question.

Thank you very much.
MR. HOWITZ: Thank you.

Stewart Resmer.
MR. RESMER: Stewart Resmer, $R-e-s-m-e-r$. I'm currently a resident in Wayne, New Jersey, I'm originally from Santa Monica, California. I'm a Vietnam Veteran, I am here for very personal and selfish reasons. I'm also here to warn you folks that the experience of the Vietnam Veteran has to do with the big three chemical companies, DuPont, Monsanto and Dow when it came to dioxin, commonly referred to as Agent Orange.

Nobody told us at the time that we were being sprayed with Agent Orange, dioxin, probably the most dangerous chemical that mankind has ever made. As time went on, we began to learn from personal experiences about skin lesions, Non-Hodgkins lymphoma, and all these things that you people fear. And still, again, we were never warned, we were never cautioned, we were never called in to go to the VA. We were never put it on registers, to my knowledge, we were never contacted us. We picked it up in the news. We picked it up in meetings like this. What my generation of Veterans learned is, these people will lie, they will deny, they will delay, and they will defend.

I have never met Mr. Epps. I have nothing personal to say against him, but $I$ will caution you
people, they did this to my generation, they continue to do it, watch out for these people.

Thank you.
MR. HOWITZ: Thank you.
Doug O'Malley.
MR. O'MALLEY: Good evening. I am Doug
O'Malley, $\mathrm{D}-\mathrm{O}-\mathrm{u}-\mathrm{g}, \mathrm{O}$, apostrophe, $\mathrm{M}-\mathrm{a}-1-1-\mathrm{e}-\mathrm{y}$. I am the Director of Environment New Jersey, we represent more than twenty thousand citizen members across the State, we are based in Trenton and New Brunswick.

I want to start off by thanking the citizens who have already testified tonight and will testify, and the organizations that they have been engaged in, including PLCAG as well as Welton Association and Citizens for a Clean Pompton Lakes, The Pompton Lakes Residents for Environmental Integrity.

There has been a legacy of battling for the truth here in Pompton Lakes and, honestly, a legacy battle for a public hearing, and, so, we thank you for holding a public hearing here tonight, but it should have happened a long time ago.

And part of, obviously, this legacy is that Pompton Lakes is, perhaps, the largest hidden and slow moving public health and environmental disaster here in this State. We don't have to say that in just
hyperbole. When we look at this State's own Department of Health analysis from close to a decade ago, linking -- elevated levels of kidney cancer and Non-Hodgkins lymphoma which has directly been linked to TCE and PCE. It found elevated levels and it triggered -- not enough to provide a direct correlation, but it did show that it could not be ruled out as an impact on the public health here in this community. And for the residents within the plume, this threat of a public health disaster and the levels of cancer in the community is motivating not only for their own survival, but motivating for why there is fear on the plans that have been presented not only tonight but through, you know, the last three and-a-half decades. And that needs -- that level of cynicism needs to be incorporated into the analysis because what we are hearing tonight is, honestly, a one-sided story. And what we need here in Pompton Lakes is not only -- we have public meetings, we have public engagement, what we need is more engagement by the Federal Government, by the US EPA. Because Pompton Lakes is, perhaps, the best example of a site in New Jersey that should be on the National Priority List or Superfund Site status. And because it is not on the national priority list, it's not a Superfund Site, it
means it's harder to have direct public engagement through the public. It's harder for residents of the town to be sure that there is an independent environmental analysis of the impacts from the site. And it is certainly harder to look at the long-term solution, which is clearly a full clean-up and a buyout for the residents that are being impacted in this community.

This hearing tonight is being held under DEP statute, New Jersey Pollutant Discharge Elimination System, and I spell that out because this study, obviously, is not eliminating pollution, it is diluting it. And we have seen time and again, when you give a corporate polluter the opportunity to attack pollution, they do not advocate for a full cleanup, they advocate for a partial cleanup, they advocate for testing, and, in this case, they advocate for a pilot study which has never been tested anywhere in the State, a pilot study that's based on computer modeling, and a pilot study that they are not willing to stand behind and say that if something goes wrong, they are willing to protect residents. And that, obviously, is a legacy that the residents here in this town have lived with long enough, and that's why you are hearing testimony again and again from the public to not -- not to rubber stamp
this permit, not to rubber stamp this hydraulic surcharging because, ultimately, this pilot test is not going to clean up the site, and I think that that is kind of obvious to anyone that is involved.

And what also should be obvious, is that this pilot test exposes the fact that there is not enough insurance built in, because as we have just heard over the course of the past hour, residents bringing up very basic questions for a backup plan, whether water levels are being monitored, is there sensors and that, obviously, is not incorporated. So the fact that you can have, you know, residents poke holes in the pilot test and ask questions about is the worst case scenario being prepared for, you know, that speaks volumes.

I am going to end my testimony, of course, by talking about what we need to see, not only here at the local level and the state level but also the Federal level. And this is a question, we need more Federal representation.

Previously Pompton Lakes was represented by Congressman Pascrell. Over the course of the last four years we've been represented by Congressman Frelinghuysen. The congressman has met only once with the citizens in this town and has refused to meet with
residents. He holds an annual Superfund tour but he has never toured Pompton Lakes. And this is where he should be, because this is a site that needs to be on the Superfund National Priorities List, and this is where the congressman should be advocating, not to cut the EPA budget but -- and not -- and, obviously, not to keep the Superfund program stable, but to increase funding for Superfund because this is a site that needs a full cleanup and residents need to have a buyout as well.

Thank you.
MR. HOWITZ: Lisa Riggiola.
MS. RIGGIOLA: Lisa Riggiola,
R-i-g-g-i-o-l-a. I am going to try to make this in the five minutes, and if not, I'll ask for your permission to get up and finish at the end.

In 1982 the Pompton Lakes DuPont worksite received a very high hazard ranking of 55 plus on the Superfund National Priorities List, but it is still not on the Federal Superfund National Priorities List. NJDEP, DuPont and the US EPA on a timeline document that was OPRA'd clearly knew in 2001 that the vapor intrusion has arrived in Pompton Lakes and that it must be addressed. In 2008 the residents living in the middle of the toxic mess were finally notified that
they are being exposed to these poisons in their own homes 24-hours a day. Seven years later they are breathing in these vapors, as others knew, but they did nothing for seven years. In 2009 the public is then notified that they are at elevated cancer rates, and this is, you know, no walk in the park, this is coming from the Federal health agency and the state health agency, and I am thankful that they released that information, although it wasn't directly related to the cancer, we all know too many who have died, including my friend two days ago her daughter (inaudible) brain cancer before 20 and my childhood friend, 57, from cancer.

So we are here 35 years later and now it's 2017, we still have no cleanup plan, and we are talking about moving VOC wastewater from a pump and dump system that's been up since the 90's from one place through the already dilapidated and burdened neighborhoods into a lake that they are spending millions of dollars on that isn't really just a lake, it's a reserve reservoir that people drink and residents depend on that water going up to the Wanaque reservoir.

So this is not a cleanup plan, people, why are we wasting our time? Why is this even in front of us? You want to move the groundwater and move it to
somewhere else, and think that's all you are going to do here? We've been doing this for nine years, we're not going away. We may move to other places to get out of the pollution but we're all going to stick together since we're all from Pompton Lakes.

So $I$ went off track a little. This, by no means, is a cleanup, but a plan of moving wastewater instead of cleaning the groundwater that has migrated and dilapidated the neighborhoods, as we know. I strongly object to this permit ever being granted for the hydraulic surcharging, and this cannot move forward for the following reasons, there is no detailed -there's been no detailed modeling done. What needs to happen is there needs to be a hydrologic and geological study and modeling and analysis of each and every home.

People, the vapor mitigation system will not work. They will not work if there is a change in anything to do with the water table. So, as we know -and I thank Ms. Enck for being honest when she was -the EPA administrator in telling me they don't remove all the poisons through the homes, they reduce them. So if you're going to start playing games with this well, there better be a 24-hour-a-day monitoring system for each and every home in the plume with an alarm system and something that the residents can look up and
see each and every day and make their own decisions about their own safety.

There needs to be a plan. If people do not feel safe in their homes, they need temporary housing. If they don't want to stay, they need a buyout. And, basically, you know what, it's time, people, enough with the pilot studies, clean up Pompton Lakes. (Inaudible)

MR. HOWITZ: Thank you.
Rich Orefice?
MR. OREFICE: Rich Orefice, R-i-c-h, O-r-e-f-i-c-e, and I will make this as brief as I can. I am a resident of Pompton Lakes since (inaudible). I developed cancer that you probably can't even pronounce probably back in 2013 and then underwent a bone marrow transplant in 2015 just to have any prospect of continuing to live. There is no way that this rare aggressive cancer can come from anywhere else but a chemical factory. This genetic mutation did not just pop up.

What my question today is, you mentioned water migrating when precipitation fell on the ground, what happened during Hurricanes Sandy and Irene? They discovered that there is chemicals all the way down by the dam, at that Victorian home, 84 Hamlin, is that
chemical that came from the DuPont site? How far has it migrated? Is it now going to Riverdale?

Pequannock? Wayne? Pine Lake? What are you guys going to do about that? This is something we heard last Tuesday at the CAG meeting (inaudible). Should we not be putting measures in place to prevent the further migration of these chemicals off of this site.

That's all I have to say.
MR. HOWITZ: Thank you.
Dorothy Mancini?
MS. MANCINI: Hi, Dorothy Mancini, 40
Durham Street, D-o-r-o-t-h-y, M-a-n-c-i-n-i. I am concerned about the backup plan. If this doesn't work, what happens to us? I mean, everybody else has addressed other problems, but then when they put their horizontal well in, what about the inconvenience to the residents, how will this affect us? And I hope that you have listened to the people because in the past I don't think that everybody has, and we want this problem to end and to make sure that our homes are safe. And if this chemical, if the water comes into our homes, if there is no backup plan and then this water is polluted, what happens to our families? So I think you should take that into consideration and protect the residents.

Thank you.
MR. HOWITZ: Thank you.
Helen Martens?
MS. MARTENS: Helen Martens, 59 White Way, Pompton Lakes, $M-a-r-t-e-n-s$.

I listened to David Epps speak tonight about this pilot study and how they feel like they've got this under control and that nothing is going to happen, I wish they would have had this before this contamination leached off their property and into our homes, that would have been a better situation.

But, anyhow, I am here to talk about the pilot study. I'm not happy with it. I really don't want it, for my neighbors, for me. I don't want it in my town. I don't want it in our neighborhood. It's not foolproof. It's a pilot study. It's never been done anywhere else. And I don't think that Chemours or the DEP has any idea how important it is for the residents to know that they are safe.

DuPont does not want to give anybody an insurance policy, but, in the meantime, they don't want to give us any technical help of our own. I have researched, there is technology that exists to level the monitored groundwater in wells before starting to do the horizontal well flushing. It is very important
to us.
There is a company out in California that I researched that does this, and I feel that if we can't get an insurance policy for the groundwater coming from under our homes, then we should be granted this request. After all, this is just a pilot study and it's not been tried anywhere else. I researched and found this company called Groundswell, I am sure if I found it, you could find it. I think that it should be offered to the residents before we start this study. They come out, they measure the water table before this horizontal well goes in, so that if there is a chance of this water table going higher and flooding our homes, we would know that it came from this well.

I want them to consider bringing this company in to protect us. We need something to prove that we are safe with our groundwater in your basements because this would prove that we are -- the levels are not going to rise in our homes. I also want to mention that if the groundwater level reaches our ground, the mitigation systems will not work, they will fail. So now you have the vapors that will be coming into our homes from what is there, plus, whatever the groundwater brings into the basements.

So I am not comfortable with this study.

I think if the other pilot studies have failed, I think that this is ridiculous, and I think you need to go back to the table and come up with a better plan because we don't deserve this. You are going to remove all the vegetation along the railroad tracks to put this well in, all these people will have no buffers. I don't think that the people know exactly, exactly, what this whole thing entails, and we are not comfortable with this.

Thank you.
MR. HOWITZ: Thank you.
Reverend Annie Allen.
REVEREND ALLEN: Good evening. My name is Reverend Annie Allen, $A-1-1-e-n$, and $I$ not here to represent a particular church or my church, I am here as a resident of Pompton Lakes.

I have three comments, one for Mr. Horwitz and the other two for the company working to clean up the chemical - Chemours. My first comment is about the process itself, and I am very pleased to see so many residents out tonight. I do not live in a plume, I do live in Pompton Lakes, my neighbors are affected. And I did not receive any notice about this hearing, I found out about it on Facebook just by -- literally by chance. And I had talked to my neighbors and no one
knew anything about this meeting, so I was -- I wanted to face a little bit about the process, and the other thing about the process is on the third point on this agenda it says the testimony, the floor will be open for comments and questions, but I have been sitting here for an hour and there's been a lot of testimony but there have been no answers to any of the questions, so I just wanted to bring that up. You don't have to answer my questions either, I just want to put on the record that in a democracy we want people's
involvement, you want the community's involvement, then we have to have a dialogue. And a dialogue is not us giving our points of view and, you know, either the government or the Company is giving their points of view.

So I think we could improve the process in terms of having more neighbors know what's going on and also by answering, having a forum in which you can actually answer some of the questions that everyone have.

My second point is that -- oh, I wanted to echo the Councilman's comments and a few other people who mentioned that there are no guarantees or no insurance policies or anything for the residents who may be affected by this surcharge study project. And
these homeowners are at risk, and my question, or now just my statement, is that $I$ would urge this Company to provide for the residents and ensure that their properties are protected either by insurance policies or whatever guarantees you can make.

And my third comment is as the state of New Jersey, the residents in this room pay a great deal of taxes to the State of New Jersey and we expect the Department of Environmental Protection Agency to protect us. We pay for the EPA, or, in this instance, the DEP to monitor companies, so we expect the Environmental Protection Agency to protect us and to look out for our interests. I don't care about DuPont, I'm sorry, but I don't care about the companies that are involved, I care about my neighbors. And I am here tonight as a neighbor, that I am concerned that our neighbors are at great risk. So I ask that the Company provide for insurance protection and guarantees for the residents.

My last point is that this is another study, and that the people of Pompton Lakes deserve to have this groundwater issue and the ground and lake remediated fixed and not another study after thirty-five years.

Thank you.

MR. HOWITZ: Thank you.
Joseph Intintola, Jr.
MR. INTINTOLA: I am Joseph Intintola,
I-n-tーi-n-t-o-l-a. I am a technical investigator for the CAG and I'm also a technical investigator for a private company. I've worked and consulted with Foster Wheeler which you know is a global engineering firm. I've also assisted and worked with them on the EAF contaminated (inaudible) Superfund site in New Jersey back in 1995.

This document that you printed up, you have drawings on it -- can everybody see -- I actually have the technical blueprints from O'Brien \& Gere. I won't tell you how I obtained them, but they were legally obtained and they are classified, so $I$ will not refer to the particulars. All these drawings in this paper $I$ have all the writing that's supposed to be on the drawings. On document File 3914.47723-06, Drawing G2, clearly states that the horizontal well is not a pilot study. It clearly states in the drawing, decommission and demolish present static fields to connect to the horizontal well. If you are doing a pilot study, which is a temporary project, you would leave the fields intact and operational and attach the horizontal well to it, shut those fields off and
operate the well. When you are done with your study, you would shut the well off and turn the fields back on. The drawings, the engineering and mechanical information that was obtained also, and I, also, was consulting with an environmental engineer, clearly states that it is a current discharge, it is not a pilot study, it will be the new discharge for the public treatment.

In 2011, spring, DuPont did a test pilot. The present pump-and-treat system is putting out 123 gallons a minute divided by two which is 61 and a half gallons per (inaudible) fields, which there are six of them, and six discharge fields another 61 and a half gallons. They increased the pump-and-treat system from 123 to 140 gallons a minute, within two hours in basements on Barbara Drive flooded two feet of water. This was put in Bergen Record and obtained from NJDEP records by the engineer that $I$ work with.

The first design of the horizontal well, which was done in 2012 by O'Brien \& Gere, the well was supposed to be put in Barbara Drive. It was supposed to be 1,200 feet long at the depth of 14 feet. After they did all the drawings, which I also have the complete copy of, the information from the engineering firm, O'Brien \& Gere, stated to DuPont that if this
well was installed on Barbara Drive and operated, the basements would flood.

All the houses, or most of the houses on Barbara Drive have sump pump systems. The houses on Walnut Street that back to the railroad tracks also have sump pump systems. Back in 1992 to 1996 when Dupont Village had a heavy metal contamination cleanup, all the back yards of the homes on Walnut Street along the tracks were dug up six and-a-half to eight feet deep. The contractor that worked for DuPont, instead of bringing in clean fill, brought in clay. Clay does not perm water. So this was not anticipated in their engineering plans for perc rate. The soil samples that were used in 2013 from zoning, they came from Barbara Drive. The basements were never actually measured. The horizontal well says that it would raise the water table four feet. You are going to be pumping 129 gallons a minute into the well, plus another 61 and a half into the (inaudible) fields, that's a total of 190 gallons a minute. In a designing system, there are no diverter valve or dump valves used in case there is a failure. There is another issue with the pump-and-treat system is manganese, a chemical which is clogging, Mr. Epps did not tell you, but starting in 2010 the pump-and-treat system crashed a total of four
times to this date and they clogged with manganese, and they brought in a hazmat truck with hazmat workers fully suited with respirators with no permits to clean out the sediment. This is an issue with the horizontal well.

Thank you.
MR. HOWITZ: Thank you.
Mike Keough.
MR. KEOUGH: I am Michael Keough,
K-e-o-u-g-h. I'm a long time resident of Pompton Lakes. I am also a longtime real estate appraiser of houses in Pompton Lakes. I, too, am concerned about the possibility that if an extreme storm comes, that extreme flooding will create contaminants that will travel and come up into basements and onto our properties.

I am also concerned that there was no public info community hearing for this hearing -- prior to this hearing on this night. Typically, in the past, we had information where there are questions and answers. I don't feel versed enough, because there was no prior meeting. I would have liked to have had that happen. I know that Jefferson LaSala mentioned that, and $I$ second that. I think that this is not proper to quickly give information, people just don't understand
what is going on, don't even know what is happening.
And Councilman Jaconetta couldn't have put it more right, there should be some kind of insurance by the polluter because homeowners insurance isn't going to cover it in case something happens here, and people are going to be up a creek, pun intended, a contaminated creek, without a paddle.

Anyway, basically, I agree with just about what everybody said here tonight. Thank you.

MR. HOWITZ: Thank you.
Karen Dean.
MS. DEAN: I'm Karen Dean, D-e-a-n.
Hello. I am a long-time resident of Pompton Lakes, I'm a former resident of Schuyler Avenue, but $I$ had to sell my home, and I just want to let you know that when this all began Dupont had a meeting at the municipal building with pictures everywhere, showing how they were going to beautify our lake, showing how they are going to clean all of this up. And, you know, to me, there was some gentleman sitting next to me laughing, do they really think we are going to clean this whole lake? Well, $I$ called the mayor out of there. Next thing I know Mr. Epps called me and said he was very sorry, sorry isn't it. That's what they laugh at us, that's what they are doing. And then my concern is,
too, they have these pump-and-treat that they are going to force through our underground water, and we have a lot of leach field and a lot have septic, and could this cause sinkholes? Did you look that up? Have you checked that out? How far are you going to be forcing the water under there? There's a lot of leach fields. And also $I$ worked for a company for 40 plus years, and they were going to leave New Jersey, and I had a chance to move to Pennsylvania to keep my job. I get a notice from my boss one day, she said look at this -- my company doesn't buy contaminated property, so $I$ went out on forced retirement, and I ended up having to sell my house which I couldn't afford to live in any longer. Because I lived on the plume, I gave my house away. And the realtor said that because I'm on the plume, I could charge you 6\%. So this is what we are dealing with in Pompton Lakes. I mean, I grew up here. I did water ballets in the lake. I learned how to swim. We ice-skated. You can't do that anymore. You can't. You left our children nothing, it's garbage. And, also, I want to know -- I actually got to the sink holes, so that's all I have to say. Thank you.

MR. HOWITZ: We are going to go around again, we have Gregory Wayne Cockefair.

MR. COCKEFAIR: May I speak again? MR. HOWITZ: Yes, you may.

MR. COCKEFAIR: Okay. I spoke before about Mother Earth, now I speak to you Pompton Lakes and you alone. Sometimes you have to do something yourself. Sometimes you have to actually fix something that nobody else can. I'm also a Veteran of the United States Coast Guard, and when took a -- when I swore to become an enlisted man in the Coast Guard, this is what I had to say, "Enemies, foreign and domestic."

At this point I see the Duponts, according to history, they were a gun powder company, they caused death. As far as I am concerned, we have to solve this problem ourselves because we are "We The People," not them. Some of Dupont people actually live here, but we who live here in Pompton Lakes have to start cleaning up this mess ourselves, because we must take responsibility for our own existence, and I speak that the truth.

Thank you very much.
MR. HOWITZ: Thank you.
Mike Serra.
MAYOR SERRA: Mike Serra, S-e-r-r-a. 41
West Lenox Avenue, Pompton Lakes, New Jersey. I'm also the mayor of the town. First of all, I want to thank
the DEP for coming up and I also want to thank the residents for showing up. This is a good turnout. My first concern would be, coming to the DEP, we have asked for many months to have regular meetings with the residents to speak with you, either privately or in a group setting, and we were told no. I think the residents would appreciate some concern shown from the DEP that you can speak to them. After a long convincing, we got EPA here every week, once a week, they are in our meeting room on Thursdays, residents can meet with them privately, talk to them quietly about their concerns. I think it's something the DEP should be looking into doing also. It doesn't have to be every a week, it can be once a month. We can get out there, and residents would show up. I think that's the first thing we should look at.

The second thing would be, how do my residents -- or how are they going to be informed about the changes and things that are going on with this project? Now, I know there is a website that some people go to and some people don't, I think it would be -- there has to be a better way to communicate with the affected residents. Because some of these things might happen quickly, and they might need to know. So I haven't heard any talk about how there's going to be
communication to the residents, so I think that's very important.

And, lastly, even though I belive in the system that they are trying to do, it is a pilot, it is a test, $I$ believe it will not flood, but I don't really know. If I had one of those homes, and I wanted to sleep at night, $I$ would want an insurance policy. Now, it's not up for the town or the residents to figure out how an insurance policy happens. I think through the state and through Chemours something should be done or discussed about the concerns about having a system in place in case something does happen. These are their homes, they put their money and their lives into these homes, so they are going to need some assurance so that they can sleep at night that nothing is going to happen. So however that's going to happen, and I don't know the mechanism to make that work, but however that's going to work, I think that should be something that you should look into.

I know there were long discussions before this meeting about insurance, and people saying that you can't get it, Chemours saying we're not allowed to get it, I am sure there are other ways to go about getting insurance, so we need to look into that. At the end of the day, the concerns of the residents are
on everybody's minds first, you know, on my mind, your mind, on EPA's mind, so that's what we have to remember, these residents are concerned about that and we need to revisit.

Thank you.
MR. HOWITZ: Thank you.
Joseph Intintola?
MR. INTINTOLA: In the design it says that you're gong to do a 12-inch boring, a total of 2,000 feet long with an inlet of 177 to surface and an outlet of 177 to surface. In this paper write-up, it says the well depth would be 20,25 feet, that's a gross mistake because that's measured at track height. The train track is actually seven feet higher than road grade and house grade, so, technically, the well would be 14 feet -- 13 feet underneath the surface. The average water table is 5 and a half feet to 11 feet, the average basement is 8 feet deep. People who have SSD systems already installed on Durham, Perrin, Schuyler, they've already been having issues with groundwater coming in from the negative pressure of the SSD systems, so that's an issue not even counting pressurized water.

If you have a 12-inch bore, you are going to use a 6-inch number 10 stainless steel casing. That
casing -- that well casing has -- every 2-inches it has a 2-inch slot, and the slot opening is
twelve-thousandths, that's about the size of your hair. Inside the 6-inch casing is HDEP pipe with T-fittings and restrictor nozzle that's so designed that the well has equal pressure from either end anywhere in the center. Out in the midwest, the longest pressurized well were three, four hundred foot wells parallel to each other. That was in a groundwater plume pressurized system, except there were no homes, the plume was in an open field where the factory was.

The longest single depth well is held by record by the drill rig company that was used in the Superfund site in Boonton, and that was 1,000 feet long, 100 foot depth, except that was a water inlet well for irrigating a farm, it was not a pressurized well. With this 2,000 foot well, there are no service ports if there is a well failure. I mentioned earlier you have manganese issues with the groundwater that's a fine grit and that accumulates. With openings of only twelve-thousandths, it won't be a long time before those ports start to clog. When they start to clog, you are going to have pressure difference.

With the calculated formulation and the engineering drawings, at 129 gallons a minute, the well
pressure will be, approximately, 75 PSI according to the engineer. But there is a mistake in the calculations, the actual pressure would be 125 PSI. This 6-inch casing is not centered in 12-inch bore, it is sitting on the bottom. They are not using raised legs to put the 6-inch casing centered in the 12 -inch bore, so with the openings around the 6-inch well -- the casing, you have an action called jet knifing, that's when you take pressurized water that is going to press against the bore opening. What that's going to cause is, for everyone in this room to understand, take your garden hose, put it on a straight nozzle, and point it towards the dirt, and leave it there for a minute, and what happens, the dirt starts to open up and you start making a hole.

Within, the engineer $I$ worked with calculated, less than a year the 12-inch bore is going to be a lot bigger, the bottom is going to start to jet knife, and you might go into other issues, and this well is also going to be five feet from the edge of the right-of-way. In the drawings -- in the specifications it says that you have fifty feet of water mounding by the well, there's homes at the end of Perrin, Schuyler, Grant that are less than 50 feet and would be in the mounding area, which would mean, basically, those
basins will flood as soon as the well is fired up. The last thing is for the residents in this room, the drill rig that they are going to use is a Model 50. To give you a mental picture, that is the size of an M1 Abrams tank, that's the size of the drill rig, that has a diesel engine that's going to be running at 2300 RPMs, eight hours a day running the drill. I don't know -- DuPont said nothing about the sound noise on the homes that are on Barbara Drive.

Thank you.
MR. HOWITZ: Thank you.
MS. MARTENS: (Inaudible) this is not a pilot study.

MR. INTINTOLA: I said that.
MS. MARTENS: What was it? I'm saying, say it again.

MR. INTINTOLA: The horizontal well is not a pilot study, the engineer drawings that $I$ have that are actually marked classified O'Brien \& Gere property clearly states it's a permanent discharge of the pump-and-treat system, it's not a pilot study.

MS. MARTENS: So how can we -- how can they do this without getting another permit and how can they do this to these people and tell them it --

MR. HOWITZ: I like to call Helen Martens.

MS. MARTENS: Speaking.
MR. HOWITZ: Are you Helen?
MS. MARTENS: Yes. That's why I want to ask him, if this is --

MR. HOWITZ: Can you spell your name?
MS. MARTENS: Helen Martens,
M-a-r-t-e-n-s. Okay.
If this is not a pilot study, then why are we here talking about this, if this is already going through?

MR. INTINTOLA: The engineer that $I$ work with, his name is Rich Chapin he is an environmental engineer, very well-known to the U.S. Government, he clearly stated that this is not a pilot study, that DuPont would have to file a whole new permit because its modified to the present permit. They have a pump-and-treat permit volume of 280 gallons a minute, but that's in present state, they are now taking a static discharge field and making it a pressurized field, that is a total different design. They are boosting up the PSIs of the system, the water volume.

And also, for the record, blue fields 1-C and 1-D that are on Barbara Drive are no longer functioning. How I know that, is that there were tests done on Walnut Street and there is a new groundwater
plume in the DuPont Village, the highest sub-slab reading from the NJDEP in 2008, they tested seven homes, the average was 2,300 parts per billion, 2,400, 26, the highest was 3,200 . One home tested on Walnut Street, 8,100 sub-slab, almost three times what Barbara Drive is. Indoor level, 75,000 parts per billion PCE, 1,600 parts per billion TCE. The EPA initially told me Perry Katz, initially wrote a letter to the homeowner claiming that there must be a mistake, but it's not, because several other homes were tested in Dupont Village and came up hot.

So putting this horizontal well in on the south side of the track, the well doesn't have a mind, it is going to send water in both directions, north and south, regardless, it's not a directional well. By you forcing water towards the north side of the track, you are going to take that contaminated pool of VOCs in the Village and push it towards Wanaque Avenue and Cannonball. So -- and there's documented evidence, and the EPA already has it on file. Ira Perry is just in denial.

MS. MARTENS: If this is true, and we are sitting here thinking this is a pilot study, and it's not, every one of you should stand up and say, "Not in our back yards, not in our town, not in our homes". We
are done with this. They need to come and do a complete cleanup, this is a lot of crap. And they are shoving it down our throats. I'm tired of being lied to. Well, does anybody got something to say?

MR. HOWITZ: Kathy Finley, please.
MS. FINLEY: Kathy Finley, F-i-n-l-e-y.
61 Jefferson Avenue. I have been a resident of Pompton Lakes for 66 years. I am presently the principal of the high school in Spartan, New Jersey, soon to be superintendent of the schools. I am disgusted. At age forty-one years old I swam these lakes. I became very ill by Dupont. I take a lot of medication to get up in the morning. I wake up at four o'clock in the morning to get myself up, since $I$ can barely walk. I live right now, because thank God for medicine, it keeps me going. My husband is an electrical engineer, two masters and a doctorate. At age 57 he now has Parkinson's disease. He can barely eat, swallow, walk. At this present time, $I$ took him to the Parkinson's Hospital Mohammed Ali Center to see what they could do to help me. I have tried everything possible and they told me, wherever you live, whatever you are by, he's contaminated with lead and mercury, and that's because my husband spent many, many years in the cellar of our home.

I just don't understand. You can't trust Dupont, Chemours (inaudible) business. I know as a principal and I know as a superintendent of schools, you can't work with them, because they have too many lawyers (inaudible), but when is this madness going to stop? Children are in schools at Lakeside by that lake. Are you kidding me? Do we know what is going on? Do we know what is happening to our children. It is there. When is this going to stop? This was a beautiful town I grew up in. What the heck happened here? It's not okay. All I can say is that I get up each day, my husband, like I said, can barely talk, I feed him. I leave for work at 5 o'clock. I go to bed at two o'clock in the morning to make sure he is in bed. I have a nurse in my home full-time taking care of him because $I$ have to work to take care of him. When is this madness going to stop in this town?

MR. HOWITZ: Cheryl Rubino?
MS. RUBINO: Cheryl, $C-h-e-r-y-1$,
R-u-b-i-n-o. This time I'm Pompton Lakes CAG, okay, I represent those two organizations, now I'm moving in a different direction. Okay. I actually, too, spoke to a vapor intrusion expert in California. I want to make sure we are very, very, very, very clear that if the groundwater tables change, everyone's individual vapor
intrusion systems that were created specifically for a DuPont home to protect or eliminate some of the TCE and PCE that is coming into your house will no longer be effective. You need to understand, that that fail safe that they are supposedly using to protect, you will not protect you any more. Because those systems were created with moving, obviously, the air under your home. If the pressure changes, the system renders ineffective. Okay. Number one.

Number two, on a personal note, I had a father who died from cancer when $I$ was thirteen. I have a mother who now has, I don't know how, Alzheimer's which does not run in our family, so attribute this to the TCE and PCE because they do affect neurological diseases. I need to make sure that if, and we hope it does not go through, but if it does, that notification of all work, all timetables of when things are going to happen is put out to every resident that will be affected along the railroad tracks, on Perrin, on Durham, on Barbara Drive, on Grant, on Jefferson. I don't care, every resident in Pompton Lakes should have gotten the notice for this hearing, and every resident in Pompton Lakes should be notified of the work that will be happening in this town.

Secondly, contingency plans, they need to
be published before, before, this permit is granted. Every one of these residents should be allowed to review the contingency plans as to what is going to happen if and when the groundwater raises above a certain level and the alarm goes off. How quickly is that system going to shut off? Is it going to flood my basement? I have the right as a U.S. citizen to know what and when it's going to happen before you issue that permit.

AUDIENCE MEMBER: And who to call?
MS. RUBINO: Who do I call? How do I get it rectified? What are the actual plans? Okay.

Moving on.
MS. MARTENS: But this isn't really a pilot study.

MS. RUBINO: It's not a pilot study, we all know it, it's bullshit there, but excuse my French. All right. Moving on. I know this was stated, but I want to make sure it is very clear, while this is intended to change the concentration of the VOCs, it will do nothing to change the mass of contaminants in the plume. It will neither remove nor destroy the VOCs of the offsite plume.

Okay. This is from the engineer, okay, we need to stop putting, what they say, shades on and
looking through glasses that are not clear. The clarity of this is it's not going to clean up the contamination. Okay. The other thing that I need to make sure that is on record from the engineer that we work with, is that the closest homes to the proposed horizontal well are located on the northern end of Perrin Ave which is where my home is, okay. Jefferson, Schuyler, Grant, and along Durham Street, not one, not one, of these locations has been assessed by modeling, not one. So you are modeling DuPont's property and the existing wells, they are not even located near any of these residential homes. Okay. I don't feel safe with this, and I am going to tell you right now, it really does concern me with a mother with dementia to have cranes and equipment coming down her street disrupting her life for something that's not going to ensure 100\% is going to work. Okay.
(At this time, audience member and Ms.
Rubino talking over each other and is inaudible.)
MR. HOWITZ: Thank you for your comments. I'm sorry, did I call Jefferson LaSala again?

MR. LASALA: Jefferson H. LaSala. First off $I$ want to say that insurance is one thing, but the issue with insurance is that whatever happens, it is
there to protect us after the fact. We should not be in a position before and after the fact. We should be protected beforehand, which means we shouldn't be in our homes if this is going to be affecting us. We should be put in safe housing here. We should be fully protected, and if they cannot guarantee it $100 \%$ and they will not give us a financial guarantee, then why is it that we even need insurance policy. We aren't safe no matter. The insurance is just -- we are already being poisoned by the time we get the insurance policy. We are already seeing our infrastructures challenged and it's completely unacceptable.

This is not a study, it's a work plan.
They keep calling it a study because the fact of the matter is they don't know how it's going to turn out. This is a work plan that they are calling a study. This is Marketing 101. It's language that's being used and it's certainly unacceptable. This has been going on for too long to us now, 35 years since the DEP told them to clean it up, 35 years before that, or more, that they were dumping on us that they didn't tell us about that we know they did purposely. Is Dave Epps still in the room?

AUDIENCE MEMBER: He left right after -AUDIENCE MEMBER: He left.

MR. LASALA: So --
AUDIENCE MEMBER: He ran out of here. MR. LASALA: So he is the responsible party's representative and he has not stayed to listen to the residents who are hurting so deeply. The nerve of this man. Where is this man to hear what is going on with us? Where is this company when we meet at the EPA? Why aren't they present at every single one of these discussions to listen to the residents' concerns, to listen to our pain and suffering, why aren't they here present now while we are giving testimony formally with a court stenographer? How on Earth do they have the nerve not to be present to the very residents that they have been poisoning for the past 70 years, it is unconscionable and it's completely unacceptable.

Lastly, $I$ want to talk about the DuPont Corporation. First off, look at their history, read a book called DuPont Dynasty: Behind the Nylon Curtain and look at the fact that they have always put their factories on waterways, specifically, knowing that the chemicals would then go off into the waterways and be brought down to the ocean thinking that the ocean would simply process it and they would never have to deal with it. This is what we are dealing with now, it's historic. It's exactly what they have always done in
this situation, we can only expect that they are going to continue to do that. The real reason for the 35 years is because in those 35 years a lot of this contamination went downstream and contaminated other towns. We aren't even looking into that fully. So what about that? I mean, why are we allowing this to become someone else's problem. We are not even cleaning it up in our town. Why are we allowing this quote/unquote responsible party to take three and a half decades to clean this up? And what are they doing now? First, they spun off to Chemours, okay. While they did that, while they were planning that, the CEO of the company, Ellen Kullman, sold $\$ 37.5$ millions of stock. And then when the SEC approved Chemours, she then retires three months later. Then they announce they are merging with Dow Chemical, so we have two of the largest chemical companies on the planet merging, and the SEC allowed them to get past the Anti-Trust Laws. Well, Dupont was the company around which the Anti-Trust Laws were written in this country, it is unacceptable that they were allowed to do this merger. It is a mistake of government they were allowed to merge them like this. Why are they doing it? Well, the next thing they plan on doing is making Dow and Dupont the new company, Dow-DuPont, and then they plan
on dividing that into thirds. So there will be three new companies out of that. What they are doing, is they are playing a game of Three-card Monte, a shell game which they are trying to distance themselves from their chemical liabilities while they make us our lab rats. Enough already. I want buyouts. I want for the residents who no longer live here and had to sell their homes at a reduced rate losing close to $\$ 200,00$ from the sale of their home, I need for them to be reimbursed for that. My brother needs to be reimbursed for his entire health care costs, so do I. I need some type of compensation for what happened to my mother. And every other person in this room needs to have compensations as well.

I want to point out one other thing, and that is that when the permit for -- the permit modification for the lake dredging was done there were people on both sides that spoke about it, there were exactly 20 on both sides that spoke for and against that permit, is it my imagination, because as far as I can tell, not one person has spoken for this study tonight. We should not be doing it.

MR. HOWITZ: We have time for one more.
AUDIENCE MEMBER: Two more?
COUNCILMAN JACONETTA: Thank you. I
appreciate it. Frank Jaconetta, Councilman for borough of Pompton Lakes. 241 Colfax Avenue.

I just want to echo what Jefferson said, as a representative of the town, this man to walk out of here five minutes after the meeting started, all of us stayed here for two hours, I want to put it on record, I'm highly insulted. I am disgusted. I am appalled and not too happy. He should have stayed to the very end, at least. Let me tell you, he gives a five-minute presentation and runs out the door, I'm highly insulted.

MR. HOWITZ: Thank you.
All right. It is $8: 57$, $I$ would like to close the public hearing. If you did not have a chance to sign in yet, we ask that you please do so at the registration desk. We will use the contact information that you provided for future outreach regarding the former DuPont Pompton Lakes Works Site.

I would like to thank everyone who has testified tonight, as well as those who have already provided their written comments. Your comments are an important factor as we consider Chemours' Discharge to Ground Water Permit-by-Rule Application. No final decision on Chemour's Permit-by-Rule Application will be made until all comments have been considered.

Remember, the comment period closes on October 26, 2017, so if you did not get a chance to comment tonight, or decide later that you have additional comments, you can submit them in written form using the contact information provided at the bottom of the fact sheet you received tonight.

As I stated at the beginning of the hearing, we will be responding to all relevant comments in a response document. We expect that response document will be available, approximately, 60 to 90 days after the comment period. Those who provided written or verbal comments will get a copy of the final decision document mailed or emailed to them. A copy of the final decision will be placed on the DEP and the EPA's website for this society. The web addresses are including in the fact sheet, and will also be placed in the local public library.

Finally, I'd like to thank St. Mary's Church and its staff, particularly, Claire Fagan, Gary Termino, and Sean Mcclintock, and custodian, Tom, for allowing us to use the Carnevale Center for this public hearing and their help in setting up the auditorium.

We really appreciate your assistance and thank you, you will be hearing from us very soon.
(At this time, the Public Hearing ended


I, Tracey L. Pinsky, a Certified Court Reporter, Registered Professional Reporter and Notary Public of the State of New Jersey, do hereby certify that the foregoing is a true and accurate computer-aided transcript of the Public Hearing transcribed via audio recording.

CERTIFICATE

Tracey Pinstey

Certified Court Reporter LICENSE No. XIOO219700 Notary Public of New Jersey My commission expires 12-9-22

| \$ | $\begin{aligned} & \text { 60:6,15;63:14;66:19; } \\ & \text { 70:22 } \\ & \text { add (1) } \end{aligned}$ | $\begin{array}{\|l} \text { agenda (1) } \\ 52: 4 \\ \text { Agent (2) } \end{array}$ | $\begin{aligned} & \text { 46:15 } \\ & \text { and-a-half (4) } \\ & 13: 12,22 ; 41: 15 ; \end{aligned}$ | $\begin{aligned} & \text { 29:15,16;34:17,17; } \\ & \text { 65:25 } \\ & \operatorname{areas}(6) \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: |
|  | 34:22 | 39:10,12 | 56:9 | 19:11;27:7;29:12, |
| $77: 8$ | added (1) | aggressive (1) | Annie (2) | $13,18,21$ |
| \$37.5 (1) | $27: 12$ | 47:18 | 51:12,14 | around (9) |
| 76:13 | addition (1) | ago (4) | announce (1) | 6:12;13:7,18:13,13; |
| A | additional (3) | 45:11 | annual (1) | 65:7;76:19 |
| A | 16:2;37:17;79: | agree (1) | 44 | arrested (2) |
| ability (2) | Additionally (1) | $58: 8$ | Anthony (2) | 23:13;24:17 |
| 12:9,13 | 27:18 | ahead (2) | $3: 17,19$ | arrived (1) |
| able (4) | address (5) 3:8;5:2,18,21,22 | $\begin{aligned} & \text { 17:10;37:19 } \\ & \text { Aid (1) } \end{aligned}$ | anticipated (2) <br> 21:10;56:12 | 44:23 <br> ashamed (1) |
| $\begin{aligned} & 16: 20 ; 20: 16 ; 21: 7 \text {; } \\ & 27: 11 \end{aligned}$ | addressed (2) | $\begin{gathered} \text { Aid (1) } \\ 25: 10 \end{gathered}$ | anticipating (1) | $16: 21$ |
| above (4) | 44:24;48:15 | air (2) | 21:7 | assessed (1) |
| 13:12,19;32:3;72:4 | addresses (2) | 16:23;71:7 | anticipation (1) | $73: 9$ assistance (1) |
| Abrams (1) | $\begin{array}{r} \text { 5:16;79:15 } \\ \text { adjacent (3) } \end{array}$ | $\begin{array}{\|c\|} \text { alarm (2) } \\ 46: 24 ; 72: 5 \end{array}$ | $\begin{gathered} 21: 3 \\ \text { Anti-Trust (2) } \end{gathered}$ | $\begin{array}{\|c} \hline \text { assistance (1) } \\ 79: 23 \end{array}$ |
| absolutely (1) | 9:6;11:23;27:23 | Alarms (1) | 76:18,20 | Assistant (1) |
| $27: 8$ | Administrative (2) | 31:25 | anymore (2) | 3:14 |
| accept (1) | 4:6;8:4 | alert (2) | 38:8;59:19 | assisted (1) |
| $6: 1$ | administrator (1) | 28:3,4 | apologies (1) | 54:8 |
| acceptable (1) | 46:20 | Ali (1) | 26:5 | Association (1) |
| 34:20 | admonish (1) | $\begin{gathered} \text { 69:20 } \\ \text { Allen (3) } \end{gathered}$ | apostrophe (1) 40:7 | $\begin{gathered} \text { 40:15 } \\ \text { assuming (1) } \end{gathered}$ |
| $\underset{4: 9 ; 26: 9}{\operatorname{accepting}(2)}$ | admonished (1) | $51: 12,13,14$ | appalled (1) | $27: 6$ |
| accommodate (1) | 35:18 | A-I-l-e-n (1) | 78:8 | assumptions (3) |
| 7:11 | adverse (1) | 51:14 | applaud (1) | 27:3;31:18,18 |
| accommodations (1) | 28:6 | alleviate (1) | 34: | assurance (2) |
| 21:2 | advertised (1) | 35:5 | Application (13) | 20:6;62:14 |
| accordance (1) | 3:10 | allow (3) | $3: 5,25 ; 4: 5,18,21$ $5 \cdot 9 \cdot 7 \cdot 20 \cdot 8 \cdot 11 \cdot 10$ | assurances (6) |
| 15:9 | Advisory (3) 26:8;32:24;33:9 | 11:15;12:9;36: <br> allowed (6) | $\begin{aligned} & \text { 5:9;7:20;8:11;10:13; } \\ & \text { 12:2;15:12;78:23,24 } \end{aligned}$ | $\begin{aligned} & 18: 4,5,18,21 ; 21 \\ & 36: 16 \end{aligned}$ |
| $\underset{4: 5 ; 60: 11 ; 65: 1}{\text { according (3) }}$ | advocate (4) | 34:12;62:22;72:2; | applications (1) | attach (1) |
| accountable (1) | 42:15,15,16,17 | 76:18,21,22 | 13:14 | 54:24 |
| 34:19 | advocating (1) | allowing (4) | applying (1) | attack (1) |
| accumulates (1) | $\begin{gathered} 44: 5 \\ \text { affect (4) } \end{gathered}$ | $23: 11 ; 76: 6,8 ; 79: 21$ <br> allows (1) | $10: 14$ <br> appraiser (1) | $42: 14$ <br> attribute (1) |
| 64:20 | $\begin{aligned} & \text { affect (4) } \\ & 27: 13 ; 29: 3 ; 48: 17 ; \end{aligned}$ | allows (1) $16: 1$ | $\begin{gathered} \text { appraiser (1) } \\ 57: 11 \end{gathered}$ | $\begin{array}{\|c} \text { attribute (1) } \\ 71: 14 \end{array}$ |
| $\begin{gathered} \text { accurate (2) } \\ 31: 15,17 \end{gathered}$ | $71: 15$ | almost (2) | appreciate (5) | audience (8) |
| across (2) | affected (6) | 14:12;68:5 | 17:22;30:9;61:7; | 7:14;15:17;72:10; |
| 22:9;40:9 | $\begin{aligned} & \text { 23:23;34:17;51:22; } \\ & 52: 25: 61: 23: 71: 19 \end{aligned}$ | alone (1) | 78:1;79:23 | $\begin{aligned} & 73: 18 ; 74: 24,25 ; 75: 2 \\ & 77: 24 \end{aligned}$ |
| Act (1) 28:11 | 52:25;61:23;71:19 <br> affecting (3) | $\begin{array}{\|c\|} \text { 60:5 } \\ \text { along (16) } \end{array}$ | $\begin{aligned} & \text { appropriate (1) } \\ & \text { 27:24 } \end{aligned}$ | auditorium (1) |
| action (3) | 28:16;33:17;74:4 | 5:8;9:1,2,16;10:10; | approvals (1) | 79:22 |
| 4:8;5:23;65:8 | afford (1) | 11:21;19:21;21:11; | 18:4 | August (2) |
| actions (1) | 59:13 | 27:7;32:8;34:23,24; | approved (1) | 3:11;22:20 |
| 28:4 | afterwards (1) | 51:5;56:8;71:19;73:8 | 76:14 | authorized (1) |
| active (1) | 18:9 | although (1) | approving (1) | 20:2 |
| 28:14 | Again (15) | 45:9 | 20:12 | automated (2) |
| activities (1) | 5:16;6:7;11:2; $12 \cdot 12 \cdot 16 \cdot 9.22 \cdot 26 \cdot 5$ | always (3) $29 \cdot 20 \cdot 75 \cdot 19,25$ | approximately (7) | 19:24;28:3 automatically (1) |
| 27:2 | $\begin{aligned} & 12: 12 ; 16: 9,22 ; 26: 5 \\ & 39: 17 ; 42: 13,24,25 ; \end{aligned}$ | $\begin{gathered} \text { 29:20;75:19,25 } \\ \text { Alzheimer's (1) } \end{gathered}$ | $\begin{aligned} & 8: 19,25 ; 10: 18 ; 11: 2, \\ & 10 ; 65: 1 ; 79: 10 \end{aligned}$ | automatically (1) $32: 2$ |
| $\begin{array}{r} \text { activity (2) } \\ 28: 21,25 \end{array}$ | $59: 25 ; 60: 1 ; 66: 16$ | Alzhem $71: 13$ | aquifer (8) | available (4) |
| acts (1) | 73:22 | America (1) | 12:5,25;14:3;19:19; | 4:24,25;27:10; |
| 8:15 | against (3) | 17:5 | :8;25:18;26:24; | 79:10 |
| actual (4) | $\begin{aligned} & 39: 25 ; 65: 10 ; 77: 19 \\ & \text { age }(2) \end{aligned}$ | $\begin{array}{r} \text { amount (2) } \\ 32: 3 ; 33: 5 \end{array}$ | 30:18 <br> arbitration (1) | $\begin{array}{\|c\|} \hline \text { Ave (2) } \\ 30: 5 ; 73: 7 \end{array}$ |
| $\begin{aligned} & 13: 5 ; 35: 6 ; 65: 3 \\ & 72: 12 \end{aligned}$ | $69: 10,17$ | amounts (1) | $22: 18$ | Avenue (7) |
| actually (11) | agency (5) | 35:16 | area (12) | 30:3;37:3;58:14; |
| $31: 8 ; 32: 16 ; 52: 19$ | 31:10;45:7,8;53:9, | analysis (5) | 8:24;11:1,1;16:14; | 60:24;68:18;69:7; |
| $54: 12 ; 56: 15 ; 59: 21$ | 12 | 37:21;41:2,16;42:4; | 19:5;20:4;28:17; | 78:2 |


| average (3) | 60:9;76:7 | 75:18 | built (2) | 71:11 |
| :---: | :---: | :---: | :---: | :---: |
| 63:16,18;68:3 | bed (2) | Boonton (1) | 21:2;43:7 | Cannonball (1) |
| avoided (1) | 70:13,15 | 64:14 | built-in (1) | 68:19 |
| 29:19 | beds (4) | boosting (1) | 24:4 | capability (1) |
| away (5) | 8:18;9:1,3;15:5 | 67:21 | bullshit (1) | 19:22 |
| 13:20;23:16,17; | beforehand (1) | bore (5) | 72:17 | card (4) |
| 46:3;59:14 | 74:3 | 63:24;65:5,7,10,17 | burdened (1) | 6:11,14;7:12;16:7 |
|  | began (3) | boring (1) | 45:18 | cards (4) |
| B | 5:25;39:14;58:16 | 63:9 | business (2) | 6:12,15;15:18;16:6 |
|  | beginning (2) | born (1) | 6:2;70:2 | care (11) |
| back (19) | 19:23;79:7 | 35:19 | buy (2) | 18:4,8;36:6,7; |
| 4:14;7:11;9:12; | begins (6) | borough (1) | 36:19;59:11 | 53:13,14,15;70:15,16; |
| $11: 16 ; 13: 8 ; 20: 16,18$ | 7:3;18:3,6,20,22; | 78:1 | buying (1) | $71: 21 ; 77: 11$ |
| 21:5,9;32:17;38:14; | 27:22 | boss (1) | 26:1 | careful (3) |
| 47:15;51:3;54:10; | behalf (2) | 59:10 | buyout (4) | 25:25,25;26:1 |
| 55:2;56:5,6,8;68:25 | 6:19;35:12 | both (6) | 36:20;42:6;44:9; | Carnevale (1) |
| backup (3) | behind (6) | 3:21;5:6;11:23; | 47:6 | 79:21 |
| 43:9;48:13,22 | 23:5,7,15;34:7; | 68:14;77:18,19 | buyouts (1) | case (7) |
| ballets (1) | 42:20;75:18 | bottom (5) | 77:6 | 3:19;20:15;42:17; |
| 59:18 | belive (1) | $32: 8,11 ; 65: 5,18$ 79.6 | C | 43:14;56:21;58:5; 62:12 |
| $9: 1,2,16 ; 10: 10$ | belongings (1) | boundary (1) | C | casing (7) |
| 22:6,7;23:21;32:6; | 21:23 | 28:9 | CAG (3) | 63:25;64:1,1,4; |
| 55:16,21;56:1,4,14; | below (3) | bowl (2) | 48:5;54:5;70:20 | 65:4,6,8 |
| 66:9;67:23;68:5; | 8:19;10:20,23 | 25:5,8 | calculated (2) | casualties (1) |
| 71:20 | beneath (1) | box (1) | 64:24;65:17 | 28:19 |
| barely (3) | 12:5 | 6:9 | calculations (2) | cause (4) |
| 69:14,18;70:12 | Bergen (1) | brain (2) | 22:21;65:3 | 28:18;29:6;59:4; |
| based (4) | 55:17 | 23:19;45:11 | California (3) | 65:11 |
| 13:13;20:9;40:10; | best (1) | breathable (1) | 39:4;50:2;70:23 | caused (1) |
| 42:19 | 41:22 | 16:23 | call (8) | 60:12 |
| baseline (1) | better (5) | breathing (1) | 6:16;12:22;15:19; | causing (1) |
| 27:18 | 11:20;46:23;49:11; | 45:3 | 30:16;66:25;72:10, | 21:13 |
| basement (10) | 51:3;61:22 | brief (1) | 11;73:21 | caution (1) |
| 13:11;19:24;20:4; | big (2) | 47:12 | called (9) | 39:25 |
| 21:23;35:1,3;37:7; | 11:13;39:8 | bring (2) | 9:3;31:10;36:1; | cautioned (1) |
| 38:21;63:18;72:7 | bigger (1) | 35:5;52:8 | 39:18;50:8;58:22,23; | 39:17 |
| basements (10) | 65:18 | bringing (3) | $65: 8 ; 75: 18$ | cellar (1) |
| $19: 21 ; 21: 19,21$ | biggest (1) | 43:9;50:15;56:11 | calling (6) | 69:24 |
| 27:2;50:17,24;55:16; | 30:12 | brings (2) | 27:14,21;35:16; | center (4) |
| 56:2,15;57:15 | billion (5) | 31:1;50:24 | 36:18;74:14,16 | 13:21;64:7;69:20; |
| basic (1) | 22:12,16;68:3,6,7 | brother (2) | came (7) | 79:21 |
| 43:9 | bioremediation (1) | 35:24;77:10 | 28:13;32:17;39:9; | centered (2) |
| basically (3) | 32:15 | brought (3) | 48:1;50:14;56:14; | 65:4,6 |
| 47:6;58:8;65:25 | bit (1) | 56:11;57:2;75:22 | 68:11 | CEO (1) |
| basins (2) | 52:2 | Brown (1) | can (52) | 76:12 |
| 9:15;66:1 | bitch (1) | 23:19 | 4:13;6:8,14;7:10; | certain (2) |
| basis (6) | 24:11 | Bruce (2) | 9:23,25;10:3;11:6,24; | 32:3;72:5 |
| 9:11,18;10:3;13:15; | blank (1) | 19:1,3 | 12:25;13:8,8,10; | certainly (2) |
| 14:16,17 | 16:6 | Brunswick (1) | 16:10;17:4,10,20,22; | 42:5;74:18 |
| battle (1) | bless (1) | 40:10 | 19:1,8;20:2;21:4,19; | challenge (1) |
| 40:19 | 23:8 | bucket (1) | 22:3;26:25;28:4; | 21:18 |
| battling (1) | block (1) | 12:15 | 29:24;30:13;43:12; | challenged (1) |
| 40:17 | 23:21 | budget (1) | 46:25;47:12,18; | 74:12 |
| beach (1) | blue (1) | 44:6 | 52:18;53:5;54:12; | challenges (1) |
| 12:15 | 67:22 | buffers (1) | 60:7;61:8,11,14,14; | 20:10 |
| beautiful (3) | blueprints (1) | $51: 6$ | 62:15;66:22,22,23; | chance (5) |
| 24:25,25;70:10 | 54:13 | building (3) | 67:5;69:14,18;70:11, | 50:12;51:25;59:8; |
| beautify (1) | board (2) | 19:25;20:23;58:17 | 12;76:1;77:21;79:4 | 78:14;79:2 |
| 58:18 | 32:22,24 | buildings (1) | cancer (13) | change (9) |
| became (1) | bone (1) | 27:23 | 22:24;23:20,22; | 8:6,7;16:19;28:21, |
| 69:11 | $47: 15$ | buildup (2) | $37: 11 ; 41: 3,11 ; 45: 5,$ | 23;46:17;70:25; |
| become (2) | book (1) | 20:21,25 | 10,12,13;47:14,18; | 72:20,21 |


| changes (2) | clay (3) | coil (1) | 55:24;69:2 | contamination (6) |
| :---: | :---: | :---: | :---: | :---: |
| 61:19;71:8 | 19:12;56:11,11 | 21:8 | completely (5) | 38:4,16;49:10;56:7; |
| Chapin (1) | clean (16) | Colfax (1) | 33:19;34:6;35:7 | 73:3;76:4 |
| 67:12 | 20:18;21:8,10,14 | 78:2 | 4:12;75:15 | contingency (3) |
| characteristics (1) | 35:18;40:15;43:3; | collect (1) | components (3) | 35:8;71:25;72:3 |
| 14:2 | 47:7;51:18;56:11; | 14:23 | 14:14,24;15: | continue (4) |
| charge (1) | 57:3;58:19,21;73:2; | comfortable (4) | computer (2) | 23:10;31:6;40:1; |
| 59:16 | 74:20;76:10 | 4:12;32:10;50:2 | 13:13;42:19 | 76:2 |
| checked | cleaned (2) | 1:8 | concentration (1) | continues (2) |
| 59:5 | 21:4;34:16 | coming | 72:20 | 28:15;38:10 |
| checking (1) | cleaning (5) | 1:8;20:5,10;21:21 | concern (7) | continuing (2) |
| 21:20 | 15:5,5;46:8;60:16; | 22;23:9;24:8;35:2; | 11:13;19:22;30:12; | 20:19;47:17 |
| chemical (11) | 76:8 | 5:6;50:5,22;61:1,3 | 58:25;61:3,7;73:14 | continuously (1) |
| 16:17;39:8,13; | cleanup | 63:21;71:3;73:15 | concerned (9) | 27:16 |
| 47:19;48:1,21;51:19; | 42:15,16;44:9 | comment (10) | 16:13;19:5;37:16 | contractor (1) |
| 56:23;76:16,17;77:5 | 45:15,23;46:7;56:7 | 5:24;26:10,12 | 48:13;53:16;57:12, | 56:10 |
| chemicals (3) | 69:2 | 27:11;34:1;51:19 | 17;60:13;63:3 | control (1) |
| 47:24;48:7;75:21 | clean-up (1) | 53:6;79:1,3,11 | concerns (9) | 49:8 |
| Chemours (9) | 42:6 | commentator (1) | 4:17;18:1;26:17,20; | convincing (1) |
| 7:25;38:3;49:17; | clear (3) | 7:2 | 31:4;61:12;62:11,25; | 61:9 |
| 51:19;62:10,22;70:2; | 70:24;72:19;73:1 | commenter (2) | 75:9 | copies (1) |
| 76:11,14 | clearing (1) | 16:10;22:3 | conclude (1) | 17:20 |
| Chemours' (6) | 15:4 | comments (24) | 27:1 | copy (7) |
| 3:4,7;4:1,17,20; | clearly (8) | 4:17;5:5,6,7,10,12 | conditions (1) | 5:11,20;6:21,22; |
| 78:22 | 6:16;42:6;44:22; | 6:1,2,8;15:17,23; | 29:14 | 55:24;79:12,13 |
| Chemour's (1) | 54:19,20;55:5;66:20; | 16:2;26:11;29:22 | conductivity (2) | Corcoran (1) |
| 78:24 | 67:14 | 51:17;52:5,22;73:20; | 12:12;19:8 | 30:4 |
| Cheryl (6) | climate (2) | 78:21,21,25;79:4,8,12 | confirm (2) | corporate (1) |
| 29:24;30:1;34:6,22; | 28:21,23 | common (1) | 27:16,20 | 42:14 |
| 70:18,19 | clock (1) | 29:13 | Congressman (4) | Corporation (1) |
| C-h-e-r-y-l (2) | 22:1 | commonly (2) | 43:22,23,24;44:5 | 75:17 |
| 30:1;70:19 | clog (2) | 29:17;39:9 | connect (1) | corrected (1) |
| child (1) | 64:22,22 | communicate | 54:22 | 26:15 |
| 35:19 | clogged | 1:2 | connected (1) | correlation (1) |
| childhood | 1 | communication (1) | 35:23 | 41:7 |
| 45:12 | cloggin | 2:1 | consequence (1) | costs (2) |
| children (5) | 56:24 | commun | 19:20 | 36:6;77:11 |
| 18:1;35:21;59:20; | clogs (1) | 16:16 | consider (2) | Councilman (7) |
| 70:6,8 | 20:22 | Community (11) | 50:15;78:22 | 17:17;26:18;30:10 |
| church (3) | close (6) | 3:22,23;25:1,2; | consideration (1) | 34:4;58:2;77:25;78:1 |
| 51:15,15;79:19 | 6:2;7:17;27:10 | 26:8;32:24;33:9;41:9, | 48:24 | Councilman's (1) |
| Cinque (1) | 41:2;77:8;78:14 | 11;42:8;57:18 | considered (1) | 52:22 |
| 3:18 | closes (1) | community's (1) | 78:25 | counting (1) |
| circulating (2) | 79:1 | 52:1 | consulted (1) | 63:22 |
| 6:12;16:5 | closest | compaction (2) | 54:6 | countless (1) |
| citizen (2) | 73:5 | 29:12,17 | consulting (1) | 35:13 |
| 40:9;72:7 | clots (1) | companies (6) | 55:5 | country (1) |
| citizens (3) | 20:22 | 18:15;39:8;53:11 | contact (5) | 76:20 |
| 40:12,15;43:25 | Coast (2) | 14;76:17;77:2 | 3:23;17:24;18:12 | County (4) |
| claim (1) | 60:8,9 | Company (20) | 78:16;79:5 | 28:11,12,16,19 |
| 26:11 | Cockefair (6) | 7:25;18:15,16 | contacted (1) | couple (2) |
| claiming (1) | 16:10,11,12;59:25; | 36:12;50:2,8,16; | 39:20 | 19:6;21:16 |
| 68:9 | 60:1,3 | 51:18;52:14;53:2,17; | containment (1) | course (3) |
| claims (1) | C-o-c-k-e-f-a-i-r (1) | 54:6;59:7,11;60:12; | 8:15 | 43:8,16,22 |
| 26:21 | 16:12 | 64:13;75:7;76:13,19, | contaminants (3) | Court (3) |
| Claire (1) | Code (2) | 25 | 35:23;57:14;72:21 | 6:17,22;75:12 |
| 79:19 | 4:6;8:4 | comparison (2) | contaminated (13) | cover (2) |
| clarity (1) | coerced (1) | 14:10;27:19 | 3:9;24:10,20;25:16 | 18:23;58:5 |
| 73:2 | 34:18 | compensation (1) | 23;35:2,6;54:9;58:7; | cranes (1) |
| class (2) | Cogura (3) | 77:12 | 59:11;68:17;69:23; | 73:15 |
| 25:1,1 | 22:3,5,5 | compensations (1) | 76:4 | crap (1) |
| classified (2) | C-o-g-u-r-a (1) | 77:14 | contaminating (1) | 69:2 |
| 54:15;66:19 | 22:6 | complete (2) | 24:24 | crashed (1) |


| 56:25 | 36:2 | 45:21 | 68:15 | document (10) |
| :---: | :---: | :---: | :---: | :---: |
| create (1) | deadly (1) | deployed (1) | directions (1) | 5:7,12,13,20;44:21; |
| 57:14 | 35:25 | 27:15 | 68:14 | 54:11,18;79:9,10,13 |
| created (2) | deal (2) | DEP's (2) | directly (7) | documented (2) |
| 71:1,7 | 53:7;75:23 | 4:25;5:14 | 9:6;11:23;13:19; | 27:24;68:19 |
| creek (2) | dealing (2) | depth (5) | 15:12;23:23;41:4; | Doka (3) |
| 58:6,7 | 59:16;75:24 | 10:21;55:22;63:12; | 45:9 | 17:8,9,12 |
| critical (1) | Dean (3) | 64:12,15 | Director (4) | dollars (3) |
| 27:8 | 58:11,12,12 | depths (1) | 3:14;4:1;7:25;40:8 | 36:6,7;45:19 |
| crystals (1) | D-e-a-n (1) | 10:22 | dirt (2) | domestic (1) |
| 20:21 | 58:12 | deserve (2) | 65:13,14 | 60:10 |
| current (3) | death (1) | 51:4;53:21 | dirty (1) | done (19) |
| 13:2;27:25;55:6 | 60:13 | design (3) | 24:20 | 14:2;16:25,25;17:4; |
| currently (3) | decade (2) | 55:19;63:8;67:20 | disassembly (1) | 31:14,23,24;32:4; |
| 11:3;26:13;39:3 | 36:18;41:2 | designated (1) | 21:1 | 37:21;38:9;46:13; |
| Curtain (1) | decades (2) | 6:9 | Disaster (5) | 49:17;55:1,20;62:10; |
| 75:18 | 41:15;76:10 | designed (2) | 28:11;29:2;31:7; | 67:25;69:1;75:25; |
| custodian (1) | decide (2) | 11:14;64:5 | 40:24;41:10 | 77:17 |
| 79:20 | 16:6;79:3 | designing (1) | Discharge (27) | Donna (1) |
| cut (1) | decision (7) | 56:20 | 3:5;4:18,20;7:19; | 26:4 |
| 44:5 | 5:8,11,13,20;78:24; | desk (4) | 8:3,4,9,12,20,22;9:1, | door (2) |
| cynicism (1) | 79:13,14 | 5:19;6:6,9;78:16 | 4,15;10:24,25;11:1; | 23:14;78:10 |
| 41:16 | decisions (1) | destroy (1) | 14:19;37:19,24;38:9; | doors (1) |
|  | $47: 1$ | $72: 22$ | 42:10;55:6,7,13; | 23:18 |
| D | $\begin{aligned} & \text { decommission (1) } \\ & 54: 21 \end{aligned}$ | $\begin{array}{\|c} \text { destroying (1) } \\ \text { 20:11 } \end{array}$ | 66:20;67:19;78:22 <br> discharged (2) | Dorothy (2) 48:10,11 |
| daily (2) | deduce (1) | detailed (2) | 8:7;26:21 | D-o-r-o-t-h-y (1) |
| 14:15,16 | 26:25 | 46:12,13 | discharging (1) | 48:12 |
| dam (1) | deem (1) | detect (1) | 13:3 | Doug (2) |
| 47:25 | 11:18 | 20:5 | disclosed (1) | 40:5,6 |
| damage (3) | deep (2) | develop (1) | 27:4 | D-0-u-g (1) |
| $28: 18 ; 37: 16 ; 38: 5$ | 56:10;63:18 | 20:22 | discovered (1) | 40:7 |
| damaging (1) | deeply (1) | developed (5) | 47:24 | Dow (3) |
| 28:16 | 75:5 | 13:16;19:6;22:24; | discussed (1) | 39:9;76:16,24 |
| Dana (5) | defend (1) | 36:2;47:14 | 62:11 | Dow-DuPont (1) |
| 26:4,6;31:1,21;34:5 | 39:23 | dialogue (2) | discusses (1) | 76:25 |
| D-a-n-a (1) | definite (1) | 52:12,12 | 28:20 | down (12) |
| 26:7 | 28:17 | die (1) | discussions (2) | 10:5,6,21;12:16; |
| dangerous (1) | delay (1) | 23:18 | 62:20;75:9 | 21:13,20;23:20; |
| 39:13 | 39:23 | died (5) | disease (1) | 25:11;47:24;69:3; |
| data (6) | demanding (1) | 22:25;35:22;37:11; | 69:18 | $73: 15 ; 75: 22$ |
| $\begin{aligned} & 13: 1 ; 14: 23 ; 21: 6 \\ & 27: 4: 31: 16: 34: 10 \end{aligned}$ | 18:20 | $45: 10 ; 71: 11$ | diseases (2) 35:22:71:15 | $\begin{gathered} \text { downstream (1) } \\ 76 \cdot 4 \end{gathered}$ |
| date (1) | $73: 14$ | $\begin{gathered} \text { diesel (1) } \\ 66: 6 \end{gathered}$ | disgusted (2) | drank (1) |
| 57:1 | democracy (1) | difference (1) | 69:10;78:7 | 24:11 |
| daughter (1) | 52:10 | 64:23 | disrupting (1) | Drawing (2) |
| 45:11 | demolish (1) | different (3) | 73:15 | 54:18,20 |
| daughters (1) | 54:21 | 18:14;67:20;70:22 | distance (1) | drawings (8) |
| 36:10 | denial (1) | dilapidated (2) | 77:4 | 54:12,16,18;55:3, |
| Dave (9) | 68:21 | 45:18;46:9 | distinct (1) | 23;64:25;65:21;66:18 |
| 3:18,20,25;7:18,22; | deny (1) | diluting (1) | 12:8 | dredging (1) |
| 15:15;18:5;22:17; | 39:23 | 42:12 | divert (3) | 77:17 |
| 74:22 | DEP (22) | dioxin (2) | 11:15;20:16;21:4 | drill (4) |
| David (2) | 3:17,19,22;9:12; | $39: 9,12$ | diverter (1) | 64:13;66:3,5,8 |
| 7:23;49:6 | 14:19,22;18:6;26:13; | dipped (1) | 56:21 | drink (5) |
| day (14) | 33:1,13,15;34:11; | 24:22 | divided (1) | 24:12,13,14,15; |
| 6:2;24:5,6,9,18; | 35:17;42:10;49:18; | direct (2) | 55:11 | 45:21 |
| 30:13;36:21;37:20; | 53:11;61:1,3,8,12; | 41:6;42:1 | dividing (1) | drinkable (2) |
| $45: 2 ; 47: 1 ; 59: 10$ $62 \cdot 25: 66 \cdot 7 \cdot 70 \cdot 12$ | 74:19;79:14 | directed (1) | $77: 1$ doctor | 16:23;24:10 |
| $\begin{aligned} & \text { 62:25;66:7;70:12 } \\ & \text { days (3) } \end{aligned}$ | Department (8) $3: 15 ; 4: 9 ; 5: 5,9,23 ;$ | $35: 1$ directio | doctor (1) | $\begin{array}{\|l\|} \hline \text { drinking (3) } \\ 14: 20 ; 25: 9,10 \end{array}$ |
| 8:9;45:11;79:11 | 6:1;41:1;53:9 | 70:22 | doctorate (1) | Drive (18) |
| dead (1) | depend (1) | directional (1) | 69:17 | 9:1,2,17;10:10; |


| 20:2;22:6,7;23:21; | 9:4 | 59:12;79:25 | estate (1) | experiences (1) |
| :---: | :---: | :---: | :---: | :---: |
| 32:6;55:16,21;56:1,4, | effective (2) | Enemies (1) | 57:11 | 39:15 |
| 15;66:9;67:23;68:6; | 10:25;71:4 | 60:10 | evaluated (1) | expert (1) |
| 71:20 | effectiveness (1) | engaged (1) | 38:17 | 70:23 |
| due (1) | 31:23 | 40:14 | evaluation (2) | experts (1) |
| 29:11 | effects (1) | engagement (3) | 27:21;38:20 | 33:22 |
| dug (1) | 28:6 | 41:20,20;42:1 | even (13) | explain (1) |
| 56:9 | efficiency (1) | engine (1) | 9:21;10:7;25:3; | 24:1 |
| dump (4) | 20:9 | 66:6 | 37:23;45:24;47:14; | explained (1) |
| 22:10;23:10;45:16; | effort (4) | engineer (10) | 58:1;62:3;63:22; | 33:24 |
| 56:21 | 27:11,17,19,22 | 55:5,18;65:2,16; | 73:11;74:8;76:5,7 | exposed (2) |
| dumped (1) | eight (2) | 66:18;67:11,13; | evening (6) | 38:3;45:1 |
| $25: 2$ | $56: 9 ; 66: 7$ | $69: 16 ; 72: 24 ; 73: 4$ | $5: 5 ; 7: 23 ; 33: 21,25$ | exposes (1) |
| dumping (4) | either (7) | engineering (6) | 40:6;51:13 | 43:6 |
| 23:3;25:18,21; | 4:13;20:14;52:9,13; | 8:22;54:7;55:3,24; | event (1) | exposure (1) |
| 74:21 | 53:4;61:5;64:6 | 56:13;64:25 | 21:11 | 37:17 |
| DuPont (38) | electrical (1) | engineers (1) | events (1) | extreme (3) |
| $3: 6,20 ; 4: 2 ; 5: 1,14$ | $69: 16$ | $8: 23$ | $9: 22$ | $29: 11 ; 57: 13,14$ |
| $\begin{aligned} & 18: 4,6 ; 20: 19 ; 23: 23 \\ & 25: 12 ; 30: 20 ; 33: 24 \end{aligned}$ | $\begin{array}{\|c} \text { electronic (2) } \\ 5: 11,19 \end{array}$ | $\begin{array}{\|c} \hline \text { enlisted (1) } \\ 60: 9 \end{array}$ | $\begin{aligned} & \text { everybody }(8) \\ & 6: 6,23,24 ; 24: 12 \end{aligned}$ | F |
| 34:10;36:16;39:8; | Element (1) | enormous (1) | 48:14,19;54:12;58:9 |  |
| 44:17,21;48:1;49:20; | 3:14 | 35:16 | everybody's (1) | face (1) |
| $\begin{aligned} & \text { 53:13;55:9,25;56:7, } \\ & \text { 10;58:16;60:15;66:8; } \end{aligned}$ | elevated (3) <br> 41:3,5;45:5 | $\begin{aligned} & \text { enough (9) } \\ & 21: 17 ; 35: 1 \end{aligned}$ | ever | 52:2 <br> Facebook (1) |
| 67:15;68:1,10;69:12; | elevation (4) | 41:6;42:24;43:7;47:7; | 16:3;52:19;65:11; | 51:24 |
| 70:2;71:2;75:16,18; | 9:9;10:9;11:12; | 57:21;77:6 | 78:19 | fact (11) |
| 76:19,25;78:18 | 30:14 | ensure (3) | everyone's (1) | 5:17;30:13;33:14; |
| Duponts (1) 60:11 | elevations (6) 9.5.18•11.3. | $30: 22 ; 53: 3 ; 73: 16$ | $70: 25$ | $\begin{aligned} & 43: 6,12 ; 74: 1,2,14 \\ & 75: 19 ; 79: 6,16 \end{aligned}$ |
| DuPont's (2) | $20: 8,9$ | 51:8 | $58: 17$ | factor (2) |
| 26:25;73:10 | eliminate (1) | entire (2) | evidence (1) | 14:4;78:22 |
| Durham (6) | 71:2 | 21:23;77:11 | 68:19 | factories (1) |
| 10:12;32:6;48:12; | eliminating (1) | Environment (1) | exactly (5) | $75: 20$ |
| 63:19;71:20;73:8 | 42:12 | 40:8 | 38:18;51:7,7;75:25; | factory (3) |
| during (13) | Elimination (1) | Environmental (9) | 77:19 | 36:5;47:19;64:11 |
| 9:8,22,24;10:7; | 42:10 | 3:15;32:23;40:16, | example (1) | Fagan (1) |
| 11:4;19:17,17;28:24; | Ellen (1) | 24;42:4;53:9,12;55:5; | 41:22 | 79:19 |
| 31:24;32:1;34:14; | 76:13 | 67:12 | excellent (1) | fail (3) |
| 37:24;47:23 | else (9) | EPA (13) | 34:5 | 30:20;50:21;71:4 |
| Dynasty (1) | 18:1,5;21:24;46:1; | 30:6;31:16;33:2,7; | except (2) | failed (1) |
| 75:18 | 47:18;48:14;49:17; | 41:21;44:6,21;46:20; | 64:10,15 | 51:1 |
| dysplasia (1) | 50:7;60:7 | $53: 10 ; 61: 9 ; 68: 7,20$ | exchange (1) | failing (1) |
| $36: 1$ | else's (1) | $75: 8$ | 17:2 | 21:3 |
|  | 76:7 | EPA's (3) | excuse (1) | fail-safes (1) |
| E | email (2) | 5:14;63:2;79:15 | 72:17 | 11:15 |
|  | 5:18,21 | Epps (11) | existence (1) | failure (2) |
|  | emailed (1) | 4:1;7:18,23,24; | 60:18 | 56:22;64:18 |
| $54: 8$ <br> earlier (2) | 79:13 emphasize (1) | $\begin{aligned} & 18: 5 ; 22: 17 ; 39: 24 \\ & \text { 49:6;56:24;58:23; } \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { existing (5) } \\ 8: 12 ; 11: 6 ; 13: 7,1 \end{array}$ | $\begin{array}{\|c} \text { fall-back (1) } \\ 20: 15 \end{array}$ |
| 13:7;64:18 | $4: 19$ | $\begin{aligned} & 4: 6 ; 3 \\ & 74: 22 \end{aligned}$ | $73: 11$ | falls (1) |
| Earth (3) | emphatically (1) | equal (3) | exists (2) | 10:5 |
| $16: 21 ; 60: 4 ; 75: 12$ | 36:16 | 4:11,15;64:6 | 38:12;49:23 | families (1) |
| earthquake (3) | Enck (1) | equipment (1) | expect (5) | 48:23 |
| 28:21;29:3;31:1 | 46:19 | 73:15 | 9:22;53:8,11;76:1; | family (7) |
| earthquakes (3) | encouraged (1) | error (1) | $79: 9$ | $16: 14 ; 18: 22 ; 37: 5$ |
| 28:16,18,22 | 34:18 | 26:14 | expected (1) | 18;38:2,2;71:13 |
| eat (1) | end (16) | essentially (4) | 20:24 | far (5) |
| $69: 18$ | $5: 25 ; 7: 9,16 ; 9: 2$ | $10: 16 ; 12: 18 ; 14: 9$ | expense (1) | $34: 8 ; 48: 1 ; 59: 5$ |
| echo (2) | 12:7;23:21;31:19; | 34:16 | 38:14 | $60: 13 ; 77: 20$ |
| 52:22;78:3 | 32:6;43:16;44:16; | establish (1) | expensive (1) | farm (1) |
| edge (1) | 48:20;62:25;64:6; | 27:18 | 20:6 | $64: 16$ |
| 65:20 | 65:23;73:6;78:9 | established (3) | experience (3) | father (2) |
| effect (1) | ended (2) | 4:5;12:21;28:4 | 27:7;28:24;39:7 | 37:11;71:11 |


| fault (6) | 44:16 | force (2) | 57:3;74:5;76:5 | 78:9 |
| :---: | :---: | :---: | :---: | :---: |
| 28:9,14,14;29:5; | finished (1) | 18:6;59:2 | functioning (1) | giving (3) |
| 31:2,4 | 15:14 | forced (1) | 67:24 | 52:13,14;75:11 |
| fear (2) | Finley (3) | 59:12 | funding (2) | glasses (1) |
| 39:16;41:13 | 69:5,6,6 | forcing (2) | 25:12;44:8 | 73:1 |
| Federal (5) | F-i-n-l-e-y (1) | 59:5;68:16 | further (1) | global (1) |
| 41:21;43:19,20; | 69:6 | foreign (1) | 48:6 | 54:7 |
| 44:20;45:7 | fired (1) | 60:10 | Furthermore (1) | God (2) |
| feed (1) | 66:1 | foremost (1) | 28:20 | 23:8;69:15 |
| 70:13 | firm (2) | 30:19 | future (2) | goes (7) |
| feel (11) | 54:7;55:25 | form (2) | 28:23;78:17 | 8:17;9:7;11:25; |
| $\begin{aligned} & 23: 9 ; 24: 9,21 ; 32: 9, \\ & 9: 35: 10: 47: 4: 49: 7 \end{aligned}$ | first (21) 7:17;15:18;16:9,9; | $35: 25 ; 79: 5$ formal (1) | G | $\begin{aligned} & \text { 12:16;42:21;50:12; } \\ & 72: 5 \end{aligned}$ |
| $50: 3 ; 57: 21 ; 73: 12$ | 17:19;22:10,22;25:3; | $34: 1$ |  | gong (1) |
| feet (27) | 30:6,19;32:13;33:1; | formally (1) | G2 (1) | 63:9 |
| 8:19,24;10:18,20, | 51:19;55:19;60:25; | 75:11 | 54:19 | Good (5) |
| 23;12:5;13:12;23:16; | 61:3,16;63:1;73:23; | formation (2) | galleries (5) | 7:23;17:19;40:6; |
| 24:4,5;55:16,22,22; | 75:17;76:11 | 10:25;13:4 | 8:18;9:6,14;11:16; | 51:13;61:2 |
| 56:9,17;63:10,12,14, | five (9) | former (8) | 14:13 | Government (5) |
| 16,16,17,17,18;64:14; | 7:1,2,3,4;15:24; | 3:6,20;4:1;5:1,14; | gallons (16) | 23:12;41:21;52:14; |
| 65:20,22,24 | 16:1;44:15;65:20; | 36:20;58:14;78:18 | 22:12,15,16,23; | 67:13;76:22 |
| fell (1) | 78:5 | forms (1) | 24:2,8,8;26:22;55:11, | grade (2) |
| 47:22 | five-minute (1) | 28:9 | 12,14,15;56:18,20; | 63:14,15 |
| fence (1) | 78:10 | formulation (1) | 64:25;67:17 | gradient (2) |
| 24:16 | fix (1) | 64:24 | game (2) | 12:10;14:5 |
| few (2) | 60:6 | forth (1) | 77:3,4 | Grant (4) |
| 33:16;52:22 | fixed (1) | 19:12 | games (1) | 32:7;65:24;71:20; |
| field (13) | 53:23 | forty-one (1) | 46:22 | 73:8 |
| 9:4,16;20:17;23:6, | flood (8) | 69:11 | garbage (1) | granted (3) |
| 7;25:5,6,7,7;59:3; | 27:2;30:13;37:7,9; | forum (1) | 59:20 | 46:10;50:5;72:1 |
| 64:11;67:19,20 | 56:2;62:5;66:1;72:6 | 52:18 | garden (1) | granting (1) |
| fields (12) | flooded (4) | forward (5) | 65:12 | 30:9 |
| 20:12,21;21:5; | 18:11;38:19,20; | 20:20;32:11;34:24; | Gary (1) | gravity (1) |
| 54:21,24,25;55:2,12, | 55:16 | 38:10;46:11 | 79:19 | 8:20 |
| 13;56:19;59:6;67:22 | flooding (5) | Foster (1) | gas (1) | great (2) |
| fifty (1) | 18:7;26:19;29:5; | 54:6 | 29:4 | 53:7,17 |
| 65:22 | 50:13;57:14 | found (4) | gave (2) | greater (1) |
| fifty-four (2) | floor (3) | 41:5;50:8,9;51:24 | 24:13;59:14 | 8:9 |
| 23:17,21 | 20:5;38:4;52:4 | four (9) | generally (2) | Greg (1) |
| figure (3) | flow (14) | 19:13,15;22:11,15; | 5:4;29:19 | 16:10 |
| 9:13;15:3;62:8 | 14:13,13;16:22; | 43:23;56:17,25;64:8; | generation (3) | Gregory (2) |
| File (3) | 19:17;20:13,14,17,18, | 69:13 | 16:18;39:21;40:1 | 16:11;59:25 |
| 54:18;67:15;68:20 | 24;21:5,13;26:23; | Frank (3) | genetic (1) | grew (3) |
| fill (3) | 27:8;29:18 | 17:15,16;78:1 | 47:19 | 36:5;59:17;70:10 |
| 6:11;16:7;56:11 | fluid (2) | F-r-a-n-k (1) | gentleman (2) | grit (1) |
| filled (3) | 12:10,13 | 17:17 | 33:24;58:20 | 64:20 |
| 6:13;15:17;24:3 | flushing (1) | Frelinghuysen (1) | geologic (2) | gross (1) |
| filtration (1) | 49:25 | 43:24 | 10:24;13:4 | 63:12 |
| 20:24 | focusing (1) | French (1) | geological (1) | ground (13) |
| final (8) | 4:19 | 72:17 | 46:14 | 8:19;10:20,23; |
| 5:8,11,13,20,23; | folks (2) | frequency (3) | geologist (2) | 12:23;13:18;18:18; |
| 78:23;79:12,14 | 19:18;39:6 | 27:25;28:1,3 | 3:21;22:20 | 22:14;30:18;37:24; |
| finally (3) | following (1) | friend (2) | geology (1) | 47:22;50:20;53:22; |
| 17:19;44:25;79:18 | 46:12 | 45:11,12 | 30:16 | 78:23 |
| financial (1) | foolproof (1) | friends (1) | Gere (4) | Groundswell (1) |
| 74:7 | 49:16 | 18:21 | 54:13;55:20,25; | 50:8 |
| financially (1) | foot (5) | front (2) | 66:19 | Groundwater (32) |
| 36:17 | 13:19,22;64:8,15, | 23:6;45:24 | gets (1) | 3:5,9;4:18,20;7:19; |
| find (1) | 17 | full (5) | 11:17 | 8:3,5,14;9:20,23; |
| 50:9 | Foote (3) | 35:7,8;42:6,15;44:9 | given (4) | 10:15;14:17;15:7; |
| fine (1) | 19:1,3,3 | full-time (1) | 5:17;15:18;16:2; | 26:23;31:14;32:17; |
| 64:20 | F-o-o-t-e (1) | 70:15 | 38:11 | 37:19;38:10;45:25; |
| finish (1) | 19:4 | fully (3) | gives (1) | 46:8;49:24;50:4,17, |


| 20,24;53:22;63:20; | H-a-r-m-a-n (1) | historic (1) | hours (3) | ill (1) |
| :---: | :---: | :---: | :---: | :---: |
| 64:9,19;67:25;70:25; | 32:21 | 75:25 | 55:15;66:7;78:6 | 69:12 |
| 72:4 | Hazard (2) | history (2) | house (17) | illness (1) |
| Groundwaters (1) | 28:11;44:18 | 60:12;75:17 | 18:7,11;22:19,21; | 35:25 |
| 9:5 | hazmat (2) | hold (1) | 23:5,6,7,9;24:3,6; | imagination (1) |
| Group (4) | 57:2,2 | 34:19 | 30:3,13;38:15;59:13, | 77:20 |
| 26:8;32:24;33:10; | HDEP (1) | holding (1) | 14;63:15;71:3 | immune (1) |
| 61:6 | 64:4 | 40:20 | houses (6) | 36:8 |
| grown (1) | health (10) | holds (1) | 18:24;38:5;56:3,3, | impact (5) |
| 36:4 | 33:19;36:6,7;40:24; | 44:1 | 4;57:12 | 10:10;20:8;29:4,17; |
| guarantee (5) | 41:2,8,10;45:7,7; | hole (1) | housing (4) | 41:8 |
| 21:22;38:1,6;74:6,7 | 77:11 | 65:15 | 36:23;38:12;47:5; | impacted (2) |
| guarantees (3) | healthy (1) | holes (2) | 74:5 | 27:17;42:7 |
| 52:23;53:5,18 | 36:11 | 43:13;59:22 | HOWITZ (36) | impacts (3) |
| Guard (2) | hear (3) | home (19) | 3:1,13;15:15;17:7, | 28:6,22;42:4 |
| 60:8,9 | 6:23;7:6;75:6 | 24:9;32:4,5;35:10; | 11,13;18:25;22:1; | Implementation (1) |
| guess (1) | heard (6) | 37:16,17,24;38:17; | 26:3;29:10,23;32:18; | 4:24 |
| 36:5 | 4:8;7:15;11:11; | 46:15,24;47:25; | 36:25;38:25;40:4; | important (6) |
| guinea (1) | 43:8;48:4;61:25 | 58:15;68:4;69:25; | 44:12;47:9;48:9;49:2; | 9:19;12:14;49:18, |
| 32:12 | hearing (31) | 70:15;71:2,8;73:7; | 51:11;54:1;57:7; | 25;62:2;78:22 |
| gun (1) | 3:1,3,4,10;4:3,7,16; | 77:9 | 58:10;59:24;60:2,21; | improve (1) |
| 60:12 | 6:5;7:9,16,21;15:16; | homeowner (1) | 63:6;66:11,25;67:2,5; | 52:16 |
| guy (3) | 22:18;30:7,9;33:20; | 68:8 | 69:5;70:18;73:20; | inaudible (16) |
| 23:15,20;25:8 | 40:19,20;41:17;42:9, | homeowners (2) | 77:23;78:12 | 22:23;35:15;36:20; |
| guys (1) | 24;51:23;57:18,18, | 53:1;58:4 | hundred (4) | 37:5;38:21;45:11; |
| 48:3 | 19;71:22;78:14;79:8, | homes (38) | 36:8,9,14;64:8 | 47:8,13;48:5;54:9; |
| H | 22,24,25 Heather (6) | $\begin{aligned} & \text { 22:12;23:4;24:21; } \\ & 25: 14,23 ; 27: 13 ; 32: 1 ; \end{aligned}$ | $\begin{gathered} \text { Hurricanes (1) } \\ 47: 23 \end{gathered}$ | $\begin{aligned} & 55: 12 ; 56: 19 ; 66: 12 \\ & 70: 2,5 ; 73: 19 \end{aligned}$ |
|  | 3:18,21,22;6:11; | 33:18;34:23,24;35:6; | hurting (1) | inch (1) |
| hails (1) | 16:5;30:8 | 36:22;38:4,5;45:2; | 75:5 | 21:10 |
| 16:14 | Heavy (2) | 46:21;47:4;48:20,22; | husband (4) | include (1) |
| hair (1) | 20:8;56:7 | 49:11;50:5,14,19,23; | 37:4;69:16,24; | 29:1 |
| 64:3 | heck (2) | 56:8;62:6,13,14; | 70:12 | includes (3) |
| half (5) | 30:16;70:10 | 64:10;65:23;66:9; | husband's (1) | 27:3,25;29:9 |
| 55:11,13;56:19; | height (1) | 68:3,10,25;73:5,12; | 37:11 | including (5) |
| 63:17;76:10 | 63:13 | 74:4;77:8 | Hydraulic (9) | 31:11;38:17;40:14; |
| hall (1) | held (2) | homogenously (1) | 3:8;4:21,23;12:12; | 45:10;79:16 |
| 6:12 | 42:9;64:12 | 27:6 | 20:13;29:14,18;43:1; | inconvenience (1) |
| Hamlin (1) | Helen (5) | honest (1) | 46:11 | 48:16 |
| 47:25 | 49:3,4;66:25;67:2,6 | 46:19 | hydrogeology (1) | incorporated (2) |
| handouts (3) | hell (1) | honestly (2) | 30:15 | 41:16;43:11 |
| 5:2;11:20;14:8 | 22:11 | 40:18;41:17 | hydrologic (1) | increase (4) |
| happen (15) | Hello (1) | hooked (1) | 46:14 | 10:1;26:23;29:5; |
| 14:4,5;29:6;30:22; | 58:13 | 20:7 | hyperbole (1) | 44:7 |
| 38:18;46:14;49:9; | help (5) | hope (2) | 41:1 | increased (4) |
| 57:23;61:24;62:12, | $15: 20 ; 35: 4 ; 49: 22 ;$ $69 \cdot 21 \cdot 79 \cdot 22$ | $48: 17 ; 71: 16$ horizontal (18) |  | $9: 8 ; 28: 21,25 ; 55: 14$ |
| 16,16;71:18;72:4,8 | 69:21;79:22 | horizontal (18) | I | increases (2) <br> $10 \cdot 4 \cdot 14 \cdot 5$ |
| 18:10;40:21;47:23; | 26:6;48:11 | 13:18;14:14;29:3; | ice-skated (1) | independent (1) |
| 70:10;77:12 | hidden (1) | 48:16;49:25;50:12; | 59:19 | 42:3 |
| happening (4) | 40:23 | 54:19,22,25;55:19; | idea (4) | Individual (6) |
| 11:24;58:1;70:8; | high (5) | 56:16;57:4;66:17; | 27:5;30:17;33:11; | 7:5;8:17;31:23; |
| 71:24 | 9:22;21:7;28:3; | 68:12;73:6 | 49:18 | 32:1;33:3;70:25 |
| happens (13) | 44:18;69:9 | Horwitz (1) | ideal (1) | Indoor (1) |
| 13:5,9,9;18:7,8,23; | higher (4) | 51:17 | 29:14 | 68:6 |
| 29:20;48:14,23;58:5; | 26:23;27:8;50:13; | hose (1) | ideas (1) | ineffective (1) |
| 62:9;65:14;73:25 | 63:14 | 65:12 | 38:1 | 71:9 |
| happy (2) | highest (2) | Hospital (1) | identical (1) | infiltration (6) |
| 49:13;78:8 | 68:1,4 | 69:20 | 14:12 | 8:18;9:14,23;11:16; |
| harder (3) | Highlands (1) | hot (1) | identified (1) | 27:6;29:9 |
| 42:1,2,5 | 28:10 | 68:11 | 7:13 | info (1) |
| Harman (1) | highly (2) | hour (2) | identify (2) | 57:18 |
| 32:21 | 78:7,11 | 43:8;52:6 | 6:20;26:20 | inform (2) |


| 33:4;34:14 | 14:13;21:2;23:9;24:6; |  | 40:15,16,18,23;41:19, | legally (1) |
| :---: | :---: | :---: | :---: | :---: |
| Information (17) | 26:1;35:1,3,6;38:15; | K | 2;43:21;44:2,17,23; | 54:15 |
| 4:23;7:19;9:12; | 41:16;45:18;48:21, |  | 46:5;47:8,13;49:5; | legs (1) |
| 12:4;27:8,9;29:2; | 24;49:10;50:22,24; | Karen (2) | 51:16,22;53:21; | 65:6 |
| 33:15,20,22;45:9; | 56:18,19;57:15; | 58:11,12 | 57:11,12;58:13 | length (2) |
| 55:4,24;57:20,25; | 61:13;62:13,19,24; | Kathy (2) | 59:17;60:4,16,24; | $32: 7 ; 37: 24$ |
| 78:16;79:5 | 65:19;71:3;75:21; | 69:5,6 | 69:8,11;70:20;71:22 | lengthy (1) |
| informed (1) | 76:5;77:1 | Katz (1) | 23;78:2,18 | 17:21 |
| 61:18 | intrusion (5) | 68:8 | Lakeside (1) | Lenox (1) |
| infrastructure (1) | 34:13;38:22;44:23; | keep (6) | $70: 6$ | 60:24 |
| $27: 14$ | $70: 23 ; 71: 1$ | 9:10;20:17;35:16; | language (1) | lesions (1) |
| infrastructures (1) | investigator (2) | 44:7;59:9;74:14 | 74:17 | $39: 15$ less (4) |
| 74:11 | 54:4,5 | keeps (1) | largest (2) | less (4) |
| inhouse 20:1 | involved | 69:15 | 40:23;76:1 | 29:14;37:8;65:17, |
| initiall | involve | Ken (1) |  | letter |
| 68:7,8 | 52:11,11 | Keough | 57:23;73:21,23,23; | 68:8 |
| inlet (2) | Ira (1) | $57: 8,9,9$ | 75:1,3 | letters (1) |
| 63:10;64:15 | 68:20 | K-e-o-u-g-h (1) | L-a-S-a-l-a (1) | 33:4 |
| Inside (1) | Irene (1) | 57:10 | 32:22 | Leukemia (2) |
| 64:4 | 47:23 | key (1) | last (12) | 36:1,2 |
| inspect (1) | irrigatin | 19:6 | 13:15;15:8;22:13; | level (14) |
| 14:14 | 64:16 | kidding | 24:13;30:1;33:10; | 11:17;27:14;28:4; |
| installed (4) | issue (8) | 70:7 | 35:1;41:14;43:22; | 30:15;32:2;35:20; |
| 10:19;38:22;56:1 $63: 19$ | 25:12;33:17; $33: 22 ;$ $56: 22 \cdot 57 \cdot 4 \cdot 63: 22 ;$ | kidney | 48:5;53:20;66:2 lastly (2) | $\begin{aligned} & 41: 15 ; 43: 18,18,19 \\ & 49: 23: 50: 20: 68: 6: \end{aligned}$ |
| 63:19 instance (1) | 56:22;57:4;63:22; | 41:3 | lastly (2) | 49:23;50:20;68:6; |
| instance $53: 10$ | 72:8;73:25 | kids (1) | 62:3;75:16 | $72: 5$ |
| 53:10 instead (3) | sued | 25:7 | later (10) | levels (11) |
| $\begin{array}{r} \text { instead (3) } \\ 32: 17 ; 46 \end{array}$ | 5:8 | kind | 22:24,25;25:16,20; | 27:12,16,17 |
| insulted (2) | 63:20;64:19;65:19 | $\begin{gathered} \text { 43:4;58 } \\ \text { knew (6) } \end{gathered}$ | 76:15;79:3 | 43:10;50:18 |
| . 78:7,11 |  | 25:19,22;34:13; | laugh (1) | liabilities (1) |
| insurance | J | 22;45:3;52:1 | 58:24 | 77:5 |
| 18:14,15,16;26:19 |  | knife (1) | laughing ( | library (2) |
| 31:9;34:21;35:8 | Jaconetta (8) | 65:19 | 58:20 | 5:16;79:17 |
| 38:12;43:7;49:21; | :15,16,17;30:10; | knifing | Laws (2) | lie (1) |
| 50:4;52:24;53:4,18; | 34:4;58:2;77:25;78:1 | 65:9 | 76:19,20 | 39:22 |
| 58:3,4;62:7,9,21,24; | J-a-c-o-n-e-t-t-a (1) | knowin | lawsuits (1) | lied (1) |
| 73:24,25;74:8,9,10 | 17:17 | $38: 15 ; 75: 20$ | $34: 19$ | $69: 3$ |
| insurances (1) | Jefferson (9) | knowledge (1) | lawyers (1) | lies (1) |
| 31:12 | 32:19,20;57:23 | 39:19 | 70:5 | 13:18 |
| intact (1) | 69:7;71:21;73:7,21, | known | leach (2) | life (7) |
| 54:24 | 23;78:3 | $36: 23$ | 59:3,6 | $16: 21,22 ; 17: 2,3$ |
| integrity (3) | J-e-f-f-e-r-s-o-n (1) | Kool (1) | leached (1) | $35: 24 ; 73: 16$ |
| 29:13;32:23;40:16 | 32:21 | 25:10 | 49:10 | lifelong (1) |
| intended (2) | Jersey (17) | Kozlowski (1) | leaching (4) | 17:18 |
| 58:6;72:20 | 3:15;4:6;14:19; | 3:19 | 20:12,17,20;21:5 | liked (1) |
| intense (1) | 28:19;30:3;31:11 | Kullman (1) | lead (1) | 57:22 |
| 10:8 | 32:14;39:3;40:8; | 76:13 | 69:23 | $\underline{\operatorname{limit}} \mathbf{( 2 )}$ |
| $\begin{gathered} \text { intensity }(1) \\ 10: 4 \end{gathered}$ | $\begin{aligned} & \text { 41:23;42:10;53:7,8; } \\ & \text { 54:9;59:8;60:24;69:9 } \end{aligned}$ |  | learn (2) | 7:1;15:23 |
| 10:4 interests (1) | $\begin{aligned} & 54: 9 ; 59: 8 ; 60: 2 \\ & \text { jet (2) } \end{aligned}$ | L | 18:9;39: <br> learned (2) | $\operatorname{limitations~(1)~}_{6: 25}^{\text {lim }}$ |
| 53:13 | 65:9,18 |  | 39:22;59:18 | limited (1) |
| interval (1) | job (1) | 77:5 | least (1) | 20:14 |
| 26:24 | 59:9 | lake (11) | 78:9 | line (10) |
| Intintola (8) | Joseph (3) | 32:5;34:25;45:19, | leave (7) | 9:24;10:1;13 |
| $\begin{aligned} & \text { 54:2,3,3;63:7,8; } \\ & \text { 66:14,17;67:11 } \end{aligned}$ | $\underset{\text { Jr (1) }}{\text { 54, }}$ (3;63:7 | 20;48:3;53:22;58:18, | 5:18;14:7,9;54:24; | 1:8,15;28:9;31:2,4; |
| I-n-ti-n-t-o-l-a (1) | Jr ${ }_{54}(1)$ | 22;59:18;70:7;77:17 | left (4) | lines (2) |
| 54:4 | jump (1) | $3: 6,20 ; 4: 2$ | 22:2;59:20;74:24, | 15:5;29:4 |
| into (35) | 24:17 | $8: 1 ; 17: 18 ; 19: 4 ; 22: 7$ | 25 | link (1) |
| 9:7;10:15,21,24; | jumping (1) | $8 ; 24: 25 ; 26: 8 ; 28: 8$ | legacy (4) | 28:20 |
| 11:14;12:23;13:4; | 24:16 | 30:3;32:22,24;33:9; | 40:17,18,22;42:22 | linked (1) |


| 41:4 | long-time (1) | 60:9;75:6,6;78:4 | 35:22;49:21 | 20:1 |
| :---: | :---: | :---: | :---: | :---: |
| linking (1) | 58:13 | Management (1) | meanwhile (1) | method (1) |
| 41:3 | look (24) | 3:16 | 21:5 | 21:10 |
| liquefaction (1) | 12:4,8,8,10,10,11, | manager (1) | measure (9) | Michael (1) |
| 28:24 | 19,24;13:8;14:4,12; | 3:19 | 9:10,11;12:12,18, | 57:9 |
| liquid (1) | 17:21;34:12;41:1; | Mancini (3) | 25;13:14;14:16; | microphone (1) |
| 19:7 | 42:5;46:25;53:13; | 48:10,11,11 | 19:23;50:11 | 15:20 |
| Lisa (2) | 59:4,10;61:16;62:19, | M-a-n-c-i-n-i (1) | measured (6) | middle (2) |
| 44:12,13 | 24;75:17,19 | 48:12 | 9:6;12:21;19:16; | 32:5;44:25 |
| list (6) | looked (2) | manganese (3) | 27:24;56:15;63:13 | midwest (1) |
| 16:8;41:23,25;44:4, | 12:2;25:5 | 56:23;57:1;64:19 | measurements (1) | 64:7 |
| 19,20 | looking (3) | mankind (1) | 13:5 | might (5) |
| listen (5) | 61:13;73:1;76:5 | 39:13 | measures (1) | 19:10;29:16;61:24, |
| 18:11;32:12;75:4,9, | losing (2) | many (9) | 48:6 | 24;65:19 |
| 10 | 20:19;77:8 | 16:16;27:3;33:8; | measuring (1) | migrated (2) |
| listened (2) | lot (16) | 45:10;51:20;61:4; | 31:22 | 46:8;48:2 |
| 48:18;49:6 | 9:23,25;12:4;14:8; | 69:24,24;70:4 | mechanical (1) | migrating (1) |
| literally (1) | 15:10;23:13,24,25; | March (2) | 55:3 | 47:22 |
| 51:24 | 52:6;59:3,3,6;65:18; | 5:25;26:12 | mechanism (1) | migration (1) |
| little (3) | 69:2,12;76:3 | marked (1) | 62:17 | 48:7 |
| 34:2;46:6;52:2 | low (2) | 66:19 | medication (1) | Mike (3) |
| live (14) | 28:1,17 | Marketing (1) | 69:12 | 57:8;60:22,23 |
| 16:12;22:6,9;30:3; | lymphoma (2) | 74:17 | medicine (1) | millennials (1) |
| 37:3;47:17;51:21,22; | 39:15;41:4 | married (1) | 69:15 | 16:19 |
| $\begin{aligned} & \text { 59:13;60:15,16; } \\ & \text { 69:14,22;77:7 } \end{aligned}$ | M | 35:20 marrow (1) | meet (4) <br> 14:18;43:25;61:11; | $\begin{array}{\|l\|} \hline \text { million (5) } \\ 22: 15,22 ; 24: 2 ; 36: 6, \end{array}$ |
| lived (2) |  | 47:15 | 75:7 | 7 |
| 42:23;59:14 | M1 (1) | Martens (13) | meeting (12) | millions (2) |
| liver (1) | 66:5 | 49:3,4,4;66:12,15, | 24:13;33:5,10,11, | 45:19;76:13 |
| 23:22 | madness (2) | 22,25;67:1,3,6,6; | 16;48:5;52:1;57:22; | mind (6) |
| lives (2) | 70:5,17 | 68:22;72:14 | 58:16;61:10;62:21; | 24:16,17;63:1,2,2; |
| 33:18;62:13 | magnesium (1) | M-a-r-t-e-n-s (2) | 78:5 | 68:13 |
| living (5) | 20:21 | 49:5;67:7 | meetings (5) | minds (1) |
| 23:8;34:17;37:4,7; | magnified (1) | Maryland (1) | 35:13,14;39:21; | 63:1 |
| 44:24 | 28:23 | $25: 11$ | 41:19;61:4 | minimum (1) |
| Lloyds (1) | magnitude (1) | Mary's (1) | member (7) | 32:4 |
| 31:11 | 31:3 | 79:18 | 26:7;72:10;73:18; | minute (11) |
| local (7) | mail (1) | mass (1) | 74:24,25;75:2;77:24 | 7:4;15:25;26:22; |
| 5:15;9:5;20:3,7; | 33:4 | 72:21 | members (3) | 29:10;55:11,15; |
| 26:24;43:18;79:17 | Mailed (2) | masters (1) | 7:14;15:17;40:9 | 56:18,20;64:25; |
| located (2) | 6:2;79:13 | 69:17 | mental (1) | 65:14;67:17 |
| 73:6,11 | mailing (1) | material (3) | 66:4 | minutes (9) |
| location (1) | 5:22 | 12:9,19,20 | mention (1) | 7:1,2,3,5;15:24; |
| 8:6 | main (1) | material's (1) | 50:19 | 16:1;21:20;44:15; |
| locations (2) | 17:23 | 12:13 | mentioned (4) | 78:5 |
| 19:24;73:9 | maintain (2) | matter (2) | 47:21;52:23;57:23; | misbehaves (1) |
| London (1) | 14:24;15:5 | 74:9,15 | 64:18 | 20:16 |
| 31:11 | maintained (1) | may (8) | mercury (1) | misleading (1) |
| long (14) | 15:1 | 7:5;16:22,23;20:22; | 69:23 | 26:16 |
| 10:19;20:12;33:7; | maintaining (2) | 46:3;52:25;60:1,2 | merge (1) | missing (1) |
| 35:11;40:21;42:23; | 15:4;29:12 | maybe (3) | 76:23 | 19:20 |
| 55:22;57:10;61:8; | maintenance (1) | 19:18,22,24 | merger (1) | mistake (4) |
| 62:20;63:10;64:15, | 21:1 | mayor (6) | 76:21 | 63:12;65:2;68:9; |
| 21;74:19 | major (1) | 16:24;18:11;36:21; | merging (2) | 76:22 |
| longer (4) | 28:18 | 58:22;60:23,25 | 76:16,17 | mitigation (9) |
| 59:13;67:23;71:3; | majors (1) | Mcelintock (1) | mess (2) | 27:20,21;28:11,12; |
| 77:7 | 31:3 | 79:20 | 44:25;60:17 | 31:22;35:4;37:22; |
| longest (2) | making (4) | mean (5) | met (4) | 46:16;50:21 |
| 64:7,12 | 6:18;65:15;67:19; | 31:5;48:14;59:17; | 14:21;27:20;39:24; | model (7) |
| long-term (1) | 76:24 | 65:25;76:6 | 43:24 | 13:15;14:1,1,3; |
| 42:5 | M-a-I-I-e-y (1) | means (3) | metal (1) | 15:7;27:3;66:4 |
| longtime (1) | $40: 7$ | 42:1;46:7;74:3 | $56: 7$ | modeling (7) |
| 57:11 | man (4) | meantime (2) | metering (1) | 13:13;31:14;42:19; |


| 46:13,15;73:9,10 | 9:20;12:20 | needed (1) | nor (1) | 3:22 |
| :---: | :---: | :---: | :---: | :---: |
| models (1) | Moving (11) | 8:2 | 72:22 | offsite (1) |
| 29:20 | 32:8,10;34:24; | needs (10) | north (3) | 72:23 |
| modification (1) | 37:18;40:24;45:16; | 32:4;41:15,16;44:3, | 19:15;68:14,16 | often (2) |
| 77:17 | 46:7;70:21;71:7; | 8;46:13,14;47:3; | northern (1) | 19:23;21:17 |
| modified (1) | 72:13,18 | 77:10,13 | 73:6 | oil (1) |
| 67:16 | MUA (1) | negative (1) | note (3) | 24:22 |
| modify (1) | 20:2 | 63:21 | 4:10;5:24;71:10 | old (5) |
| 27:12 | M-u-c-d-e-r (1) | neighbor (2) | notice (5) | 11:6;23:17,19,22; |
| Mohammed (1) | 17:13 | 23:14;53:16 | 5:22;26:11;51:23; | 69:11 |
| 69:20 | much (10) | neighborhood (3) | 59:9;71:22 | O'Malley (3) |
| money (1) | 14:24;21:25;22:14, | 23:14;24:24;49:15 | notification (1) | 40:5,6,7 |
| 62:13 | 19;24:6;26:3;27:7; | neighborhoods (2) | 71:17 | once (4) |
| Monica (1) | 29:23;38:24;60:20 | 45:18;46:9 | notified (4) | 7:5;43:24;61:9,14 |
| 39:4 | M-u-l-d-e-r (1) | neighbors (7) | 25:3;44:25;45:5; | one (34) |
| monitor (10) | 17:14 | 18:22;49:14;51:22, | 71:23 | 6:13;7:4;11:11; |
| 9:17,19,21;10:3; | municipal (1) | 25;52:17;53:15,17 | notify (2) | 15:25;17:2;22:25; |
| 14:12,13;20:4;27:16; | 58:16 | neither (1) | 7:3;15:24 | 24:1,2,5;29:10;30:3, |
| 29:17;53:11 | murder (1) | 72:22 | nozzle (2) | 10,13;31:2;36:5,8; |
| monitored (4) | 23:13 | nerve (2) | 64:5;65:13 | 37:4;45:17;51:17,25; |
| 11:4,22; $43: 10$; | must (7) | 75:5,13 | number (7) | 59:10;62:6;68:4,24; |
| 49:24 | 6:3,10;31:23,25; | neurological (1) | 11:21;12:22;15:10; | 71:9;72:2;73:8,9,10, |
| monitoring (11) | 44:23;60:17;68:9 | 71:15 | 30:18;63:25;71:9,10 | 24;75:8;77:15,21,23 |
| 13:6;19:14,25; | mutation (1) | New (23) | nurse (1) | ones (3) |
| 21:17;27:15;28:1; | $47: 19$ | 3:15;4:6;14:19; | 70:15 | 9:15,16;32:13 |
| 31:21;32:1;37:20,22; | Myelodysplastic (1) | 28:19;30:3;31:11; | Nylon (1) | one-sided (1) |
| 46:23 | 36:1 | 32:13;39:3;40:8,10; | 75:18 | 41:18 |
| Monsanto (1) | myself (3) | 41:22;42:10;53:7,8; |  | Ongoing (2) |
| 39:8 | 31:8,9;69:14 | 54:9;55:7;59:8;60:24; | 0 | 31:20,21 |
| $\begin{gathered} \text { Monte (1) } \\ 77: 3 \end{gathered}$ | N | $\begin{aligned} & 67: 15,25 ; 69: 9 ; 76: 25 ; \\ & 77: 2 \end{aligned}$ |  | $\begin{aligned} & \text { online (2) } \\ & 17: 21 ; 19: 7 \end{aligned}$ |
| month (1) | N | news (2) | $46: 10$ | only (18) |
| 61:14 | nagging (1) | 35:12;39:20 | objectives (1) | 7:5;11:7;16:3,16; |
| monthly (3) | 30:7 | newspaper (3) | 27:20 | 17:4;19:9,13,15,16; |
| 9:11;13:14;28:2 | name (20) | 3:11,12;31:5 | O'Brien (4) | 33:14;38:2;41:11,13, |
| months (2) | 3:13;6:17;7:23; | next (13) | 54:13;55:20,25; | 19;43:17,24;64:20; |
| 61:4;76:15 | 15:19,20,21;16:10,11; | 17:7,9;18:12;19:1; | 66:19 | 76:1 |
| more (15) | 17:16;19:2,3;22:4,5; | 22:3;23:5,14;30:5; | obtained (4) | onto (1) |
| $14: 25 ; 19: 10,23,23$ | 26:6;28:13;29:24; | 36:5;37:15;58:20,22; | $54: 14,15 ; 55: 4,17$ | 57:15 |
| $36: 17 ; 37: 8 ; 40: 9$ | 30:2;51:13;67:5,12 | $76: 24$ | obvious (2) | open (8) |
| 41:20;43:19;52:17; | nation (1) | Nicole (4) | 43:4,5 | 3:1,3;7:21;8:24; |
| 58:3;71:6;74:20; | 32:14 | 3:18,21;6:11;16:5 | obviously (6) | 9:7;52:4;64:11;65:15 |
| 77:23,24 | National (5) | night (4) | 40:22;42:12,22; | opening (2) |
| morning (3) | 41:23,25;44:4,19, | 21:19;57:19;62:7, | 43:11;44:6;71:7 | 64:2;65:10 |
| $69: 13,13 ; 70: 14$ | 20 | 15 | occur (1) | openings (2) |
| Morristown (1) | Native-American (1) | nine (2) | 27:6 | 64:20;65:7 |
| 31:3 | 16:14 | 13:12;46:2 | occurs (1) | operate (8) |
| most (5) | natural (2) | NJDEP (4) | 7:17 | 10:22;13:23,24; |
| 10:8,16;28:14; | 29:2;31:7 | 3:7;44:21;55:17; | ocean (2) | 15:2,2,9;20:19;55:1 |
| 39:13;56:3 | near (6) | 68:2 | 75:22,22 | operated (1) |
| Mother (8) | 29:9,15,19;36:4; | NJPDES (3) | o'clock (4) | 56:1 |
| 16:21;32:9;35:22; | 37:16;73:11 | 4:4;8:13,16 | 3:2;69:13;70:13,14 | operating (4) |
| 37:11;60:4;71:12; | necessity (1) | nobody (5) | October (3) | 8:25;12:3;14:10,11 |
| 73:14;77:12 | 21:1 | 25:18,19,19;39:11; | 5:25;6:3;79:2 | operation (6) |
| motivating (2) | need (30) | 60:7 | off (15) | 11:4;12:2;13:2; |
| 41:11,12 | 8:8,9;16:17;29:7, | noise (1) | 14:4;30:4;32:2; | 14:21,22;23:20 |
| mounding (2) | 15;33:21;36:17; | 66:9 | 40:11;46:6;48:7; | operational (1) |
| 65:22,25 | 38:19;41:18,20; | Non-Hodgkins (2) | 49:10;54:25;55:2; | 54:24 |
| move (8) | 43:17,19;44:9;47:4,5; | 39:15;41:4 | 72:5,6;73:24;75:17, | operations (2) |
| 13:20;38:10,14; | 50:16;51:2;61:24; | nonhomogeneous (1) | 21;76:11 | 9:4;20:13 |
| 45:25,25;46:3,11; | 62:14,24;63:4;69:1; | 19:9 | offered (1) | opportunity (7) |
| 59:9 | $71: 4,15,25 ; 72: 25$ | nonsense (1) | $50: 10$ | $4: 8 ; 6: 24 ; 7: 9 ; 15: 18$ |
| moves (2) | 73:3;74:8;77:9,11 | 18:16 | Office (1) | 16:2,4;42:14 |


| opposed (3) | Paez (3) | 37:23;41:5;68:6; | Perry (2) | 72:3,12 |
| :---: | :---: | :---: | :---: | :---: |
| 20:19;21:19;37:18 | 37:1,2,2 | 71:3,14 | 68:8,20 | play (1) |
| OPRA'd (1) | P-a-e-z (1) | Pennsylvania (1) | person (8) | 25:6 |
| 44:22 | 37:3 | 59:9 | 5:10;6:10;7:6,9,15; | played (1) |
| optimum (2) | page (1) | people (41) | 17:10;77:13,21 | 25:7 |
| 15:6;20:3 | 4:25 | 7:12;10:16;16:18; | personal (4) | playing (2) |
| option (2) | pages (1) | 17:4;21:17;22:13; | 39:5,14,25;71:10 | 46:22;77:3 |
| 38:11,12 | 5:14 | 23:7,8,10,13,24,25; | phase (1) | PLCAG (1) |
| Orange (2) | pain (1) | 24:14,25;33:6,10, | 22:10 | 40:14 |
| 39:10,12 | 75:10 | 38:2;39:16,22;40:1,2; | PhD (1) | Please (14) |
| Orchard (1) | pair (1) | 45:21,23;46:16;47:3, | 35:20 | 4:10;5:18,24;6:16, |
| 32:25 | 24:22 | 7;48:18;51:6,7;52:22; | picked (2) | 22;7:1;15:19,22,23; |
| order (2) | pants (1) | 53:21;57:25;58:6; | 39:20,20 | 16:7;29:1,25;69:5; |
| 27:16;35:4 | 24:22 | 60:14,15;61:21,21; | picture (2) | 78:15 |
| Orefice (3) | paper (2) | 62:21;63:18;66:24; | 11:19;66:4 | pleased (1) |
| 47:10,11,11 | 54:17;63:11 | 77:18 | pictures (2) | 51:20 |
| O-r-e-f-i-c-e (1) | parallel (1) | people's (1) | 18:13;58:17 | plug (1) |
| 47:12 | 64:8 | 52:10 | Piedmont (1) | 21:12 |
| organization (3) | park (1) | Pequannock (1) | 28:10 | plume (15) |
| 6:20,21;15:22 | 45:6 | 48:3 | Piezometers (1) | 19:5;32:25;34:17; |
| organizations (2) | Parkinson's (2) | per (8) | 19:13 | 36:23;38:17;41:9; |
| 40:13;70:21 | 69:18,19 | 7:2;19:16;26:22; | pig (1) | 46:24;51:21;59:14, |
| originally (1) | part (5) | 28:2;55:12;68:3,6,7 | 21:12 | 15;64:9,11;68:1; |
| 39:4 | 3:7;4:3;8:11;16:13; | perc (1) | pigs (1) | 72:22,23 |
| others (2) | 40:22 | 56:13 | 32:12 | plus (4) |
| 15:11;45:3 | partial (1) | percent (3) | Pilot (35) | 44:18;50:23;56:18; |
| ours (2) | 42:16 | 36:8,9,14 | 3:8;4:22,24;11:4,9; | 59:7 |
| 8:5;38:17 | participation (1) | performance (2) | 26:20;27:5,11,19,22; | pm (2) |
| ourselves (2) | 4:4 | 15:6;27:22 | 42:17,18,19;43:2,6, | 7:16;80:1 |
| 60:14,17 | particular (2) | perhaps (2) | 13;47:7;49:7,13,16; | podcasts (1) |
| out (44) | 6:20;51:15 | 40:23;41:22 | 50:6;51:1;54:20,23; | 35:13 |
| 6:11,13;9:3,15; | particularly (1) | period (8) | 55:7,9;62:4;66:13,18, | point (9) |
| 10:2;11:8;13:25;15:3, | 79:19 | 5:25;11:10;17:1; | 21;67:8,14;68:23; | $20: 11 ; 26: 10 ; 28: 7 \text {; }$ |
| 17;16:7;21:4,8,9,14; | particulars (1) | 26:12;27:11;31:19; | $72: 15,16$ | $52: 3,21 ; 53: 20 ; 60: 11$ |
| 22:3,17;24:7;28:13; | 54:16 | 79:1,11 | Pine (1) | 65:13;77:15 |
| 36:19,22;40:2;41:8; | parts (3) | perm (1) | 48:3 | points (3) |
| 42:11;46:3;50:2,11; | 68:3,6,7 | 56:12 | pipe (3) | 11:22;52:13,14 |
| 51:21,24;53:13; | party (3) | permanent (1) | 27:7;37:15;64:4 | poison (1) |
| 55:10;57:4;58:22; | 34:13;35:17;76:9 | 66:20 | pipeline (1) | 37:18 |
| 59:5,12;61:15;62:8; | party's (1) | permeability (2) | 29:6 | poisoned (1) |
| 64:7;71:18;74:15; | 75:4 | 12:9;26:24 | piping (1) | 74:10 |
| 75:2;77:2,15;78:4,10 | Pascrell (1) | permission (1) | 8:24 | poisoning (1) |
| outlet (1) | 43:22 | 44:15 | pits (1) | 75:14 |
| 63:10 | pass (2) | permit (23) | 9:7 | poisons (2) |
| outreach (1) | 12:10;17:11 | 4:8;5:9;8:5,7,11; | place (3) | 45:1;46:21 |
| 78:17 | Passaic (3) | 14:15,25;15:9,12; | 45:17;48:6;62:12 | poke (1) |
| over (18) | 28:11,12,16 | 20:14;36:13;37:19; | placed (4) | 43:12 |
| 7:18;9:9,10;13:2, | passed (1) | 43:1;46:10;66:23; | 5:13;16:8;79:14,16 | policies (2) |
| 15;17:14;22:11; | 23:17 | 67:15,16,17;72:1,9; | places (1) | 52:24;53:4 |
| 23:16,18,24;24:16,17; | past (7) | 77:16,16,20 | 46:3 | policy (9) |
| 25:6,13;38:7;43:8,22; | 20:2,20;43:8;48:18; | Permit-by-Rule (14) | Plan (20) | 30:21;31:10,13; |
| 73:19 | 57:19;75:14;76:18 | 3:5,25;4:4,18,20; | 4:25;26:25;27:5; | 49:21;50:4;62:7,9; |
| Oversight (1) | Pat (1) | 7:20;8:2,8,10;10:13; | 28:12;31:16;32:10; | 74:8,11 |
| 3:14 | 30:4 | 12:1;14:11;78:23,24 | 35:8;36:20;43:9; | Pollutant (1) |
| own (9) | PATERSON (2) | permits (2) | 45:15,23;46:7;47:3; | 42:10 |
| 31:12;35:10;41:1, | 29:11;34:6 | 7:8;57:3 | 48:13,22;51:3;74:13, | polluted (1) |
| 12;45:1;47:1,2;49:22; | Patterson (4) | permitted (1) | 16;76:24,25 | 48:23 |
| 60:18 | 26:4,4,6,7 | 8:16 | planet (1) | polluter (3) |
| P | $\begin{aligned} & \text { P-a-t-t-e-r-s-o-n (1) } \\ & \text { 26:7 } \end{aligned}$ | $\begin{array}{\|c} \text { permittee (1) } \\ 5: 10 \end{array}$ | 76:17 <br> planning (1) | $\begin{aligned} & 35: 15 ; 42: 14 ; 58: 4 \\ & \text { pollutes (1) } \end{aligned}$ |
|  | pay (2) | Perrin (6) | 76:12 | 21:22 |
| paddle (1) | 53:7,10 | 30:2,4;63:19;65:23; | plans (5) | pollution (6) |
| 58:7 | PCE (5) | 71:20;73:7 | 41:13;56:13;71:25; | 17:3;34:16;37:12; |


| 42:12,14;46:4 | 65:10 | 66:19;73:10 | 24:19,20;56:17 | raise (1) |
| :---: | :---: | :---: | :---: | :---: |
| Pompton (47) | pressure (9) | proposal (2) | pun (1) | 56:16 |
| 3:6,20;4:2;5:1,15; | 8:21;21:8;27:13; | 27:25;29:8 | 58:6 | raised (2) |
| 8:1;17:18;19:4;22:7, | 63:21;64:6,23;65:1,3; | propose (1) | pure (1) | 26:18;65:6 |
| 8;24:25;26:8;28:8; | 71:8 | 13:24 | 16:22 | raises (1) |
| 30:3;32:22,24;33:9; | pressurized (6) | proposed (5) | purge (2) | 72:4 |
| 40:15,16,18,23;41:18, | 63:23;64:7,10,16; | 3:7;4:8;26:20,25; | 20:20;21:9 | raising (1) |
| 21;43:21;44:2,17,23; | 65:9;67:19 | 73:5 | purity (1) | 28:7 |
| 46:5;47:7,13;49:5; | pretty (1) | prospect (1) | 17:3 | Ramapo (4) |
| 51:16,22;53:21; | 19:12 | 47:16 | purpose (3) | 28:9,14;29:5;31:2 |
| 57:10,12;58:13; | prevent (3) | protect (11) | 4:7,16;6:10 | ramp-up (2) |
| 59:17;60:4,16,24; | 20:25;28:5;48:6 | 31:8,9;42:21;48:25; | purposely (1) | 19:17;20:14 |
| 69:7;70:20;71:21,23; | Previously (1) | 50:16;53:10,12;71:2, | 74:22 | $\boldsymbol{r a n}(1)$ |
| 78:2,18 | 43:21 | 5,6;74:1 | push (1) | 75:2 |
| pool (4) | principal (2) | protected (3) | 68:18 | ranking (1) |
| 24:4,4,7;68:17 | 69:8;70:3 | 53:4;74:3,6 | put (24) | 44:18 |
| pop (1) | printed (1) | protecting (1) | 10:21;12:23;13:10; | rare (1) |
| 47:20 | 54:11 | 30:24 | $18: 13,17 ; 22: 11 ; 24: 2$ | 47:17 |
| ports (2) | Prior (3) | Protection (5) | 32:14;35:4;36:22; | rate (6) |
| 64:18,22 | 12:1;57:18,22 | 3:16;35:8;53:9,12, | 39:19;48:15;51:5; | 13:4;19:17;20:14; |
| position (2) | Priorities (3) | 18 | 52:9;55:17,21;58:2; | 26:21;56:13;77:8 |
| 20:15;74:2 | 44:4,19,20 | prove (2) | 62:13;65:6,12;71:18; | rates (2) |
| possibility (1) | Priority (2) | 50:16,18 | 74:5;75:19;78:6 | 13:23;45:5 |
| 57:13 | 41:23,25 | proven (1) | putting (5) | rats (1) |
| possible (1) | private (1) | 32:15 | 21:12;48:6;55:10 | 77:6 |
| 69:21 | 54:6 | provide (12) | $68: 12 ; 72: 25$ | raw (1) |
| posted (1) | privately (2) | 4:7;5:21,21;6:22; | Q | 27:4 |
| 31:16 ost-ma |  | 14:21;17:22;18:15 | O | $\begin{gathered} \text { reaches (1) } \\ 50: 20 \end{gathered}$ |
| 6:3 | 28:15 | 53:3,18 | quantities (1) | reaching (2) |
| potentially (1) | probably (4) | provided (6) | 20:7 | 7:4;16:1 |
| 35:6 | 11:20;39:12;47:14, | 5:2,16;78:17,21 | quarterly (2) | reacts (1) |
| pouring (1) | 15 | 79:5,11 | $14: 22 ; 34: 10$ | 15:6 |
| 12:15 | problem (10) | providing (2) | quick (1) | read (2) |
| powder (1) | 16:15;25:17,21; | 26:11;30:21 | 31:6 | 20:3;75:17 |
| $60: 12$ | 26:2;30:24;35:5;37:6; | Provinces (1) | quickly (4) | reading (1) |
| pray (2) | 48:20;60:14;76:7 | $28: 10$ | $12: 17 ; 57: 25 ; 61: 24$ | $68: 2$ |
| $16: 24,25$ | problems (2) | PSI (2) | $72: 5$ | readings (2) |
| prayer (1) | 16:17;48:15 | 65:1,3 | quiet (1) | 19:7;20:10 |
| 16:20 | procedure (1) | PSIs (1) | 38:7 | ready (2) |
| precipitation (2) | 6:5 | 67:21 | quietly (1) | 20:5;21:14 |
|  | process (8) | public (31) | $61: 11$ | real (3) |
| precursor (1) | $4: 4 ; 33: 21 ; 34: 2$ | $3: 3 ; 4: 3,3,7 ; 5: 15,24$ | quite (2) | 31:6;57:11;76:2 |
| 35:25 | 51:20;52:2,3,16; | 6:4;26:10,11;27:4,10; | $16: 13 ; 19: 8$ | reality (1) |
| predict (2) | 75:23 processed (1) | 33:14,16;34:1;40:19, | quote/unquote (2) 30:20:76:9 | $37: 13$ |
| 15:7;29:20 predictive (2) | $\begin{gathered} \text { processed (1) } \\ 19: 12 \end{gathered}$ | $\begin{aligned} & 20,24 ; 41: 8,10,19,20 \\ & 42: 1,2,25 ; 45: 4 ; 55: 8 \end{aligned}$ | 30:20;76:9 | really (11) 16:17;17:2;36:1 |
| 13:17;14:1 | Professional (2) | 57:18;78:14;79:17, | $\mathbf{R}$ | 37:13;45:20;49:13; |
| prepared (2) | 7:24;22:19 | 21,25 |  | 58:21;62:5;72:14; |
| 4:13;43:14 | Program (4) | published (1) | radio (1) | 73:13;79:23 |
| present (10) | 3:16;8:13,16;44:7 | 72:1 | 35:13 | realtor (1) |
| 33:10,16;54:21; | Project (5) | pull (1) | railroad (13) | $59: 15$ |
| 55:10;67:16,18; | 4:1;7:25;52:25; | 21:7 | 9:2;10:11;11:21; | real-world (3) |
| 69:19;75:8,11,13 | 54:23;61:20 | pump (8) | 29:9,13,15,19;30:4,5; | 12:4;13:14,25 |
| presentation (4) | pronounce (1) | 8:14;12:23;22:10, | 37:15;51:5;56:5; | rear (1) |
| 3:25;7:18,20;78:10 | 47:14 | 17;24:7;45:16;56:4,6 | $71: 19$ | 6:4 |
| presentations (1) | proper (2) | pump-and-treat (8) | rain (6) | reason (3) |
| $17: 20$ | 37:21;57:24 | $37: 14 ; 55: 10,14$ | $9: 22,25 ; 10: 1,4,8$ | 11:5;36:21;76:2 |
| presented (1) | properties (6) | 56:23,25;59:1;66:21; | $20: 8$ | reasons (2) |
| $41: 13$ | 12:18,20,25;33:18; | 67:17 | rainfall (2) | 39:6;46:12 |
| presently (1) | 53:4;57:16 | pumping (10) | 11:9;13:9 | re-bring (1) |
| 69:8 | property (5) | $10: 15 ; 12: 22 ; 13: 1$ | raining (1) | 21:6 |
| press (1) | 31:24;49:10;59:11; | $23 ; 20: 22 ; 23: 3,5$ | 37:9 | receive (6) |


| 4:15,17;5:11,19,22; | remaining (2) | 51:16;57:10;58:13, | 47:10,11;67:12 | 14:1,3;78:10 |
| :---: | :---: | :---: | :---: | :---: |
| 51:23 | 7:4;15:25 | 14;69:7;71:18,21,23 | R-i-c-h (1) | rupture (1) |
| received (4) | remediated (1) | residential (2) | 47:11 | 29:6 |
| 5:2;6:1;44:18;79:6 | 53:23 | 19:25;73:12 | ridiculous (2) | Ruth (2) |
| recommend (1) | Remediation (2) | residents (53) | 35:21;51:2 | 37:1,2 |
| 20:11 | 3:14,16 | 17:24;18:19,21; | rig (3) | R-u-t-h (1) |
| recommended (1) | remember (2) | 26:18;30:21,25; | 64:13;66:3,6 | 37:2 |
| 29:18 | 63:3;79:1 | 31:19;32:12,23;33:4, | Riggiola (3) |  |
| recommending (1) | remove (3) | 8;34:8,14;35:12; | 44:12,13,13 | S |
| 28:2 | 46:20;51:4;72:22 | 36:15;40:16;41:9; | R-i-g-g-i-o-l-a (1) |  |
| record (10) | renders (2) | 42:2,7,22,23;43:8,12; | 44:14 | safe (16) |
| 3:2,10;6:17,18; | 5:9;71:8 | 44:1,9,24;45:21; | right (20) | 24:9;30:20;32:9,10; |
| $52: 10 ; 55: 17 ; 64: 13$ | repetitive (1) | 46:25;48:17,25; | 7:14;15:1,2,2; | 35:10;36:22;38:11, |
| 67:22;73:4;78:7 | 28:24 | 49:19;50:10;51:21; | 16:25;17:9,24;19:15; | 14;47:4;48:21;49:19; |
| records (1) | report (3) | 52:24;53:3,7,19;61:2, | 23:16,24;30:5;31:5; | 50:17;71:4;73:12; |
| 55:18 | 9:12;28:13,20 | 5,7,10,15,18,23;62:1, | 38:13;58:3;69:15; | $74: 5,9$ |
| rectified (1) | Reporter (2) | 8,25;63:3;66:2;72:2; | 72:7,18;73:13;74:24; | safety (1) |
| $72: 12$ | 6:18,22 | 75:5,13;77:7 | 78:13 | 47:2 |
| reduce (3) | reporting (1) | residents' (1) | rightfully (1) | sale (1) |
| 19:21;37:23;46:21 | 25:4 | 75:9 | 11:13 | 77:9 |
| reduced (1) | reports (1) | resident's (2) | right-of-way (1) | same (9) |
| 77:8 | 14:22 | 31:23;32:1 | 65:21 | 10:24;11:2,5;13:3, |
| refer (1) | represent (3) | residual (1) | rise (8) | 3,4;23:17;24:23; |
| 54:16 | 40:8;51:15;70:21 | 20:23 | 9:10,10;10:5;11:17; | 33:20 |
| referred (1) | representation (1) | Resmer (3) | 13:19;19:20;27:13; | sampled (1) |
| 39:9 | $43: 20$ | 39:1,2,2 | $50: 19$ | $19: 9$ |
| refused (1) | representative (4) | R-e-s-m-e-r (1) | rises (3) | samples (1) |
| 43:25 | 18:2,19;75:4;78:4 | 39:2 | 11:12;13:21;32:3 | 56:13 |
| regarding (4) | represented (2) | respect (1) | risk (3) | sand (2) |
| 3:4;26:19;28:8; | $43: 21,23$ | $7: 14$ | 31:19;53:1,17 | $12: 15,19$ |
| $78: 17$ | representing (1) | respirators (1) | risks (2) | Sandy (2) |
| regardless (2) | 15:22 | 57:3 | 26:19;29:7 | 37:8;47:23 |
| 38:21;68:15 | request (1) | respond (1) | Riverdale (1) | Santa (1) |
| region (1) | 50:6 | 5:5 | 48:2 | 39:4 |
| 28:15 | requesting (1) | responding (2) | road (1) | saturated (1) |
| Registered (1) | 27:9 | 5:4;79:8 | 63:14 | 28:23 |
| 7:24 | require (1) | response (9) | rock (1) | saturation (1) |
| registers (1) | $14: 15$ | 5:7,12;11:7,9;12:5, | $30: 15$ | $28: 25$ |
| 39:19 | required (1) | 24;19:19;79:9,9 | room (7) | saying (5) |
| registration (8) | 8:3 | responsibility (1) | 33:6;53:7;61:10; | $28: 21 ; 36: 15 ; 62: 21,$ |
| 4:14;5:19;6:6,9,11, | requirement (4) | $60: 18$ | $65: 11 ; 66: 3 ; 74: 23$ | $22 ; 66: 15$ |
| 15;7:12;78:16 | 14:20,25,25;15:8 | responsible (4) | 77:13 | scared (1) |
| regular (5) | requirements (6) | 34:12;35:17;75:3; | route (1) | 24:15 |
| 9:18;10:3;14:17; | 14:10,11,19;15:10, | 76:9 | 32:17 | scenario (1) |
| 33:4;61:4 | 11;20:20 | restart (1) | RPMs (1) | $43: 14$ |
| reimbursed (2) | requires (1) | 21:4 | 66:7 | schedule (1) |
| 77:10,10 | 8:7 | restrictor (1) | rubber (2) | 28:1 |
| reiterate (1) | researched (3) | 64:5 | 42:25;43:1 | school (2) |
| 31:20 | 49:23;50:3,7 | retirement (1) | Rubino (9) | 35:20;69:9 |
| related (1) | reserve (1) | 59:12 | 29:24;30:1,2;34:6; | schools (3) |
| 45:9 | 45:20 | retires (1) | 70:18,19;72:11,16; | 69:10;70:3,6 |
| Relations (2) | reservoir (2) | 76:15 | 73:19 | Schuyler (5) |
| 3:22,23 | 45:20,22 | returned (1) | R-u-b-i-n-o (2) | 37:3;58:14;63:19; |
| relatively (1) | reset (1) | 36:9 | 30:2;70:20 | 65:23;73:8 |
| 27:25 | 21:14 | Reverend (3) | ruled (1) | Schwartz (1) |
| released (1) | residence (1) | 51:12,13,14 | 41:7 | 30:8 |
| 45:8 | 30:17 | reverse (1) | rules (2) | science (1) |
| releases (1) | residences (1) | 20:18 | 4:5;6:5 | 12:7 |
| 34:18 | 10:10 | review (1) | run (2) | Scientist (1) |
| relevant (2) | resident (17) | 72:3 | 11:21;71:13 | 7:24 |
| 5:6;79:8 | 17:18;19:4;22:8; | revisit (1) | running (4) | Sean (1) |
| relying (1) | 30:2;32:25;37:4; | 63:4 | 21:13,20;66:7,7 | 79:20 |
| 27:1 | 38:11;39:3;47:13; | Rich (3) | runs (3) | SEC (2) |


| 76:14,18 | shades (1) | 78:18 | 60:5,6 | spun (1) |
| :---: | :---: | :---: | :---: | :---: |
| second (7) | 72:25 | sites (1) | somewhere (1) | 76:11 |
| 7:10,12;20:11; | shallow (2) | 19:10 | 46:1 | square (1) |
| 36:23;52:21;57:24; | 26:24;30:18 | sits (1) | son (1) | 8:24 |
| 61:17 | sharp (1) | 20:5 | 24:11 | SSD (2) |
| secondary (1) | 10:1 | sitting (5) | soon (3) | 63:18,21 |
| 28:22 | sheet (3) | 28:8;52:5;58:20; | 66:1;69:9;79:24 | St (1) |
| Secondly (1) | 6:5;79:6,16 | 65:5;68:23 | sorry (7) | 79:18 |
| 71:25 | sheets (1) | situation (4) | 23:2,9;26:5;53:14; | stable (1) |
| seconds (1) | 5:17 | 33:9;38:13;49:11; | 58:24,24;73:21 | 44:7 |
| 22:2 | shell (1) | 76:1 | sound (1) | stack (1) |
| section (1) | 77:3 | six (6) | 66:9 | 6:14 |
| 5:12 | short (1) | 22:16;36:3,9;55:12, | south (2) | staff (1) |
| sediment (1) | 3:24 | 13;56:9 | 68:13,15 | 79:19 |
| 57:4 | shoving (1) | sixteen (1) | space (1) | stainless (1) |
| sedimentation (1) | 69:3 | 24:4 | 27:24 | 63:25 |
| 20:25 | show (3) | size (3) | spaghetti (2) | stamp (2) |
| seeing (1) | 3:2;41:7;61:15 | 64:3;66:5,5 | 25:5,8 | 42:25;43:1 |
| 74:11 | showing (3) | skin (1) | Spartan (1) | stand (5) |
| seismic (1) | 58:17,18;61:2 | 39:15 | 69:9 | 34:7;36:12,14; |
| 28:25 | shown (1) | slabs (1) | speak (15) | 42:20;68:24 |
| seismically (1) | 61:7 | 13:11 | 6:10,13,16,24; | standpoint (2) |
| 28:14 | shows (1) | sleep (3) | 15:19;16:4,7,18; | 8:23;12:7 |
| selfish (1) | 9:13 | 21:19;62:7,15 | 30:10;49:6;60:1,4,18; | start (11) |
| 39:6 | shut (4) | slide (3) | 61:5,8 | 17:13;26:11;30:6; |
| sell (3) | 32:2;54:25;55:2; | 15:11;17:20;21:9 | speaker (10) | 40:11;46:22;50:10; |
| 58:14;59:12;77:7 | 72:6 | Sloan-Kettering (1) | $6: 12,14,15,25$ | $60: 16 ; 64: 22,22$ |
| send (2) | sick (4) | 36:3 | $15: 18 ; 16: 6,7,9 ; 17: 7$ | 65:15,18 |
| 25:11;68:14 | 23:14,15,24;36:4 | slope (1) | 19:1 | started (5) |
| sensors (2) | side (5) | 12:11 | speakers (3) | 22:9;26:12;37:9,9; |
| 27:15;43:11 | 10:11,18;19:15; | slot (2) | 6:19;7:5,13 | 78:5 |
| sent (1) | 68:13,16 | 64:2,2 | speaking (4) | starting (2) |
| 33:3 | sides (3) | slots (2) | 4:12;6:19;34:9; | 49:24;56:24 |
| September (1) | 11:23;77:18,19 | 21:11,14 | 67:1 | starts (4) |
| 3:12 | sign (5) | slow (1) | speaks (1) | 10:4;21:22;30:18; |
| septic (1) | 6:7;7:12;26:1; | 40:24 | 43:15 | $65: 14$ |
| $59: 3$ | 34:18;78:15 | smell (1) | special (1) | startup (1) |
| series (2) | signed (2) | 24:23 | 25:10 | 19:17 |
| 9:3,14 | 5:3,17 | soccer (6) | specific (2) | start-up (1) |
| serious (2) | significant (1) | 9:3,16;25:5,6,7,7 | 6:9;33:25 | 20:13 |
| 19:22;35:24 | 5:6 | society (1) | specifically (2) | State (12) |
| Serra (3) $60: 22,23,23$ | $\begin{aligned} & \text { significantly (1) } \\ & 27: 12 \end{aligned}$ | $\begin{aligned} & 79: 15 \\ & \text { soil (6) } \end{aligned}$ | $\begin{gathered} 71: 1 ; 75: 20 \\ \text { specifications (1) } \end{gathered}$ | $\begin{aligned} & 23: 11 ; 31: 11 ; 32: 13 \\ & 40: 10,25 ; 42: 18 \end{aligned}$ |
| S-e-r-r-a (1) | sign-up (1) | 12:5;19:8,11;29:21; | 65:21 | 43:18;45:7;53:6,8; |
| 60:23 | 6:5 | 30:15;56:13 | spell (8) | 62:10;67:18 |
| service (1) | similar (1) | Soils (1) | 6:17;15:21;16:10; | stated (4) |
| 64:17 | 19:25 | 28:23 | 19:2;22:4;29:24; | 55:25;67:14;72:18; |
| session (2) | simply (1) | sold (1) | 42:11;67:5 | 79:7 |
| 33:15,20 | 75:23 | 76:13 | spending (1) | statement (2) |
| set (1) | simulations (1) | solids (2) | 45:19 | 4:13;53:2 |
| 7:2 | 27:1 | 20:23,25 | spent (1) | statements (2) |
| setting (2) | single (2) | solution (1) | 69:24 | 4:10,11 |
| 61:6;79:22 | 64:12;75:8 | 42:6 | spoke (4) | States (6) |
| seven (7) | $\operatorname{sink}$ (1) | solve (1) | 60:3;70:22;77:18, | 17:5;54:19,20;55:6; |
| 23:2;34:14;36:24; | 59:22 | 60:13 | 19 | 60:8;66:20 |
| 45:2,4;63:14;68:2 | sinkholes (1) | solved (1) | spoken (3) | State's (1) |
| seventy-five (1) | 59:4 | 16:18 | 34:8;35:11;77:21 | 41:1 |
| 24:8 | Site (23) | somehow (1) | sporadically (1) | static (2) |
| seventy-four (1) | 3:6,16,20,23;4:2; | 34:20 | 19:9 | 54:21;67:19 |
| 23:19 | 5:1,15;8:1,13,15; | someone (2) | sprayed (1) | stations (2) |
| several (4) | 10:15;41:22,24,25; | 4:12;76:7 | 39:12 | 19:14;20:22 |
| 17:24;33:3;35:21; | 42:4;43:3;44:3,8; | sometimes (5) | spring (1) | status (1) |
| 68:10 | 48:1,7;54:9;64:14; | 12:16,17;19:11; | 55:9 | 41:24 |


| statute (1) | 3:7;5:10 | system (49) | 79:20 | 77:3 |
| :---: | :---: | :---: | :---: | :---: |
| 42:10 | submitting (2) | 8:12,14,15,20,22; | terms (1) | throats (1) |
| stay (1) | 12:1;34:10 | 10:15;11:6,6,10,14; | 52:17 | 69:3 |
| 47:5 | sub-slab (2) | 12:2;13:3,8,10, 16,17; | test (6) | throughout (2) |
| stayed (3) | 68:1,5 | 14:14,21,23,24;15:1, | 24:18;43:2,6,13; | 20:3;28:19 |
| 75:4;78:6,8 | subsurface (1) | 1,4,6;21:8;22:10; | 55:9;62:5 | Thursdays (1) |
| stays (1) | 10:21 | 27:22;36:8;37:14,20, | testament (2) | 61:10 |
| 20:17 | Suburban (1) | 22;38:22;42:11; | 33:6;36:19 | timeline (1) |
| steel (1) | 3:11 | 45:16;46:16,23,25; | tested (8) | 44:21 |
| 63:25 | sudden (2) | 55:10,14;56:20,23,25; | 19:10,10;30:14; | timer (2) |
| stenographer (1) | 25:15,17 | 62:4,11;64:10;66:21; | 32:16;42:18;68:2,4, | 7:2;15:24 |
| 75:12 | suffering (1) | 67:21;71:8;72:6 | 10 | times (9) |
| step (1) | 75:10 | systems (9) | testified (2) | 9:8,22;22:15;23:20; |
| 15:19 | sufficient (1) | 31:22;35:4;50:21; | 40:12;78:20 | 24:5,6;28:1;57:1;68:5 |
| stepping (1) | 28:5 | $56: 4,6 ; 63: 19,22 ; 71: 1$ | testify (5) | timetables (1) |
| 30:24 | suggesting (1) | 6 | 6:7;7:5,10;16:3; | 71:17 |
| Stewart (2) | 20:15 |  | 40:13 | tired (2) |
| 39:1,2 | suing (1) | T | testimony (12) | 35:14;69:3 |
| stick (2) | 23:15 |  | 4:15;6:19,22;7:1,7, | today (2) |
| 25:13;46:4 | suited (1) | table (28) | 17,21;42:24;43:16; | 26:10;47:21 |
| still (5) | 57:3 | 4:14;6:4,15;9:5,9, | 52:4,6;75:11 | together (1) |
| 36:7;39:16;44:19 | sump (2) | 18;10:5,6,9;11:3,7,12, | testing (2) | 46:4 |
| 45:15;74:23 | 56:4,6 | 17,22;12:11,24;13:9, | 31:21;42:16 | told (11) |
| stock (1) | Superfund (10) | 13,20,21;27:13;32:3; | tests (3) | 10:7;20:10;34:2,15, |
| 76:14 | 41:24,25;44:1,4,7,8, | 46:18;50:11,13;51:3; | 12:23;13:1;67:24 | 15;36:3;39:11;61:6; |
| stop (4) | 19,20;54:9;64:14 | 56:17;63:17 | T-fittings (1) | 68:7;69:22;74:19 |
| 70:6,9,17;72:25 | superintendent (2) | tables (1) | 64:4 | Tom (1) |
| storm (1) | 69:10;70:3 | 70:25 | thankful (1) | 79:20 |
| 57:13 | supplemental (1) | talk (5) | 45:8 | tonight (19) |
| storms (1) | 27:9 | 49:12;61:11,25; | thanking (2) | 3:17,24;4:10,21; |
| 28:24 | supposed (5) | 70:12;75:16 | 30:6;40:11 | 17:25;33:24;40:12, |
| story (2) | 24:9;34:12;54:17; | talked (2) | thinking (2) | 20;41:14,17;42:9; |
| 31:19;41:18 | 55:21,21 | 13:7;51:25 | 68:23;75:22 | 49:6;51:21;53:16; |
| straight (1) | supposedly (1) | talking (5) | third (2) | 58:9;77:22;78:20; |
| 65:12 | 71:5 | 38:7;43:17;45:15; | 52:3;53:6 | 79:3,6 |
| Street (12) | surcharge (5) | 67:9;73:19 | thirds (1) | tonight's (2) |
| $10: 12 ; 22: 9 ; 23: 20$ | 20:13,23;21:12; | tank (1) | 77:1 | 4:16;6:18 |
| 32:6,25;48:12;56:5,8; | 31:4;52:25 | 66:5 | thirteen (1) | took (2) |
| 67:25;68:5;73:8,15 | Surcharging (6) | taxes (1) | 71:11 | 60:8;69:19 |
| strongly (2) | 3:8;4:21,23;26:22; | 53:8 | thirty (2) | tool (1) |
| 37:18;46:10 | 43:2;46:11 | TCE (5) | 24:2,5 | 13:17 |
| structural (2) | sure (12) | 37:23;41:5;68:7 | thirty-five (2) | top (1) |
| 29:12;38:5 | 5:18;26:15;30:23; | 71:2,14 | 35:17;53:24 | 28:8 |
| structures (1) | 42:3;48:20;50:8; | technical (7) | thirty-two (1) | total (4) |
| 29:21 | 62:23;70:14,24; | 14:8;26:20;33:22; | 22:2 | 56:19,25;63:9; |
| studies (2) | 71:15;72:19;73:4 | 49:22;54:4,5,13 | though (1) | 67:20 |
| 47:7;51:1 | surface (6) | technically (1) | 62:3 | tour (1) |
| Study (41) | 8:20;10:20,23; | 63:15 | thought (1) | 44:1 |
| $3: 8 ; 4: 22,24 ; 11: 5$ | 63:10,11,16 | technology (1) | $19: 24$ | toured (1) |
| 26:21;27:5;31:15,25; | survival (1) | 49:23 | thousand (3) | 44:2 |
| 33:11;38:8,8;42:11, | 41:12 | telling (2) | 24:7,8;40:9 | towards (4) |
| 17,18,19;46:15;49:7, | swallow (1) | 24:12;46:20 | thousands (1) | 20:18;65:13;68:16, |
| 13,16;50:6,10,25; | 69:18 | tells (1) | 16:15 | 18 |
| 52:25;53:21,23; | swam (1) | 14:1 | threat (2) | town (22) |
| 54:20,23;55:1,7; | 69:11 | temporary (2) | 28:17;41:10 | 16:12,13;18:3; |
| 66:13,18,21;67:8,14; | Swartz (1) | 47:4;54:23 | threatening (1) | 24:25;33:16;35:12, |
| $\begin{aligned} & \text { 68:23;72:15,16; } \\ & 74: 13,14,16 ; 77: 21 \end{aligned}$ | $3: 18$ swim (1) | ten (12) 8:19;13:12;14: | $35: 24$ three (13) | $\begin{aligned} & 18 ; 36: 15,19 ; 37: 12 ; \\ & 42: 3,23 ; 43: 25 ; 49: 15 \end{aligned}$ |
| stuff (3) | 59:18 | $22: 21,23,24 ; 23: 1,1$ | $12: 8,18 ; 23: 18 ; 24: 5,$ | 60:25;62:8;68:25; |
| 14:8;23:17,22 | swimming (1) | 25:15,16,18,20 | 6;39:8;41:14;51:17 | 70:10,17;71:24;76:8; |
| submit (3) | 24:3 | tend (1) | 64:8;68:5;76:9,15; | 78:4 |
| 4:13;6:8;79:4 | swore (1) | 29:14 | 77:1 | towns (1) |
| submitted (2) | 60:8 | Termino (1) | Three-card (1) | 76:5 |


| toxic (2) | twelve (1) | 35:3,15,18;36:4,5,25; | vertical (1) | 14:20,20;19:20;20:1, |
| :---: | :---: | :---: | :---: | :---: |
| 38:17;44:25 | 8:17 | 39:20,21;43:3,9; | 10:17 | 5,9;21:21,22;22:12, |
| track (8) | twelve-thousandths (2) | 44:16;45:17,22; | Veteran (3) | 14,16,19,23;23:9; |
| 9:10;11:21;29:13; | 64:3,21 | 46:25;47:7,20;51:3, | 39:5,7;60:7 | 24:2,6,8,10,11,12,12, |
| 46:6;63:13,14;68:13, | twenty (6) | 18;52:8;54:11;56:9; | Veterans (1) | 13,18,20;25:9,10,13, |
| 16 | 13:2,15;22:13,15; | 57:15;58:6,19;59:4, | 39:22 | 23;26:21;27:12,12,13, |
| tracks (13) | 23:3;40:9 | 12,17;60:17;61:1,2, | vibration (1) | 14,16,17,23;29:4; |
| 9:2;10:11;23:16; | twenty-four (1) | 15;62:8;65:15;66:1; | 21:15 | 30:15,18;31:22;32:3; |
| 29:9,16,19;30:4,5; | 24:7 | 67:21;68:11,24; | Victorian (1) | 34:25;35:2,6;37:14, |
| 37:15;51:5;56:5,9; | twice (1) | 69:12,13,14;70:10,11; | 47:25 | 25;43:10;45:21; |
| 71:19 | 19:16 | 73:2;74:20;76:8,10; | Vietnam (2) | 46:18;47:22;48:21, |
| train (1) | two (17) | 79:22 | 39:5,7 | 23;50:11,13;55:16; |
| 63:13 | 13:19;23:18,20; | Update (1) | view (3) | 56:12,16;59:2,6,18; |
| transcriber (1) | 26:20;28:1;45:11; | 28:12 | 6:24;52:13,15 | 63:17,23;64:15;65:9, |
| 15:21 | 51:18;55:11,15,16; | upon (2) | Village (4) | 22;67:21;68:14,16; |
| transferred (1) | 69:16;70:14,21; | 7:4;15:25 | 56:7;68:1,11,18 | 78:23 |
| 15:12 | 71:10;76:16;77:24; | urge (1) | VOC (4) | waters (1) |
| transmit (1) | 78:6 | 53:2 | 19:21;20:9,10; | 16:22 |
| 12:13 | type (2) | usage (1) | 45:16 | waterways (2) |
| transplant (2) | 38:13;77:12 | 20:1 | VOCs (5) | 75:20,21 |
| 36:10;47:16 | typically (2) | use (6) | 35:3;37:14;68:17; | way (10) |
| travel (1) | 13:12;57:19 | $12: 4 ; 13: 17 ; 63: 25$ | $72: 20,22$ | $13: 1 ; 16: 20 ; 19: 15$ <br> 31:9,12•32:6:47:17, |
| 57:15 <br> traveling (1) | U | $\begin{aligned} & \text { 66:3;78:16;79:21 } \\ & \text { used (9) } \end{aligned}$ | $\begin{array}{\|l\|} \hline \mathbf{V o j o ~ ( 3 ) ~} \\ 22: 3,5 ; 34: 6 \end{array}$ | $\begin{aligned} & 31: 9,12 ; 32: 6 ; 47: 17 \\ & 24 ; 49: 4 ; 61: 22 \end{aligned}$ |
| 37:15 |  | 13:1;20:1;25:6; | V-0-j-o (1) | Wayne (5) |
| treat (1) | ultimately (1) | 31:18,25;56:14,21; | 22:6 | 3:13;16:11;39:3; |
| 10:14 | 43:2 | 64:13;74:17 | volume (2) | 48:3;59:25 |
| treated (1) | unacceptable (8) | using (5) | 67:17,21 | ways (1) |
| 8:17 | 11:18;33:12,19; | 7:2;15:24;65:6; | volumes (1) | 62:23 |
| treating (2) | 35:7;74:12,18;75:15; | 71:5;79:5 | 43:15 | wearing (1) |
| $8: 14 ; 24: 20$ treatment (2) | $76: 21$ <br> unconscionable (1) | V | W | $24: 21$ web (5) |
| treatment (2) <br> 8:14;55:8 | unconscionable (1) 75:15 | V | W | web (5) $4: 25 ; 5: 1,14,16 ;$ |
| Trends (1) | under (14) | VA (1) | wake (1) | 79:15 |
| 3:11 | 8:13,16,21;14:11; | 39:18 | 69:13 | website (5) |
| Trenton (1) | 15:24;22:19,21; | value (1) | walk (4) | 26:13;31:17;34:11; |
| 40:10 | 30:16;36:20;42:9; | 33:18 | 45:6;69:14,18;78:4 | 61:20;79:15 |
| tried (4) | 49:8;50:5;59:6;71:7 | valve (1) | Walnut (4) | week (6) |
| 31:8;32:16;50:7; | undergo (1) | 56:21 | $56: 5,8 ; 67: 25 ; 68: 4$ | 19:16;28:2;33:10; |
| 69:21 | 35:24 | valves (1) | Wanaque (2) | $61: 9,9,14$ |
| triggered (1) | underground (1) | 56:21 | 45:22;68:18 | weeks (2) |
| 41:6 | 59:2 | VanEck (1) | wants (2) | 36:3;37:8 |
| truck (1) | underneath (7) | 3:18 | 7:10;16:3 | weight (2) |
| 57:2 | 22:12;23:4;24:3,9, | vapor (8) | warn (1) | 4:11,15 |
| true (1) | 21;25:14;63:16 | 34:13;35:4;37:21; | 39:6 | well-known (1) |
| 68:22 | underway (1) | 38:22;44:22;46:16; | warned (1) | 67:13 |
| trust (1) | 27:19 | 70:23,25 | 39:17 | wells (12) |
| 70:1 | underwent (1) | vapors (2) | washed (1) | 9:17,21;10:2,16; |
| truth (2) | 47:15 | 45:3;50:22 | 24:23 | 13:6;15:4;22:16; |
| 40:18;60:19 | unexpected (1) | variable (1) | Waste (1) | 25:23;27:15;49:24; |
| try (2) | 21:11 | 19:8 | 3:16 | 64:8;73:11 |
| 15:23;44:14 | unfair (1) | varied (1) | wastewater (2) | Welton (1) |
| trying (5) | 34:3 | 14:2 | 45:16;46:7 | 40:14 |
| 27:1;33:2,6;62:4; | United (2) | vegetation (1) | wasting (1) | weren't (1) |
| 77:4 | 17:4;60:7 | 51:5 | 45:24 | 25:3 |
| Tuesday (1) | universal (1) | vehicle (1) | watch (1) | West (1) |
| 48:5 | 16:15 | 20:2 | 40:2 | 60:24 |
| turn (3) | unknown (1) | verbal (5) | water (99) | what's (1) |
| 7:18;55:2;74:15 | 29:21 | $4: 9,11,15 ; 5: 6 ; 79: 12$ | $8: 6,17 ; 9: 5,7,9,18$ | 52:17 |
| turned (1) | up (59) | versed (1) | $10: 5,5,9,20 ; 11: 1,3,7$ | Wheeler (1) |
| 10:18 | 4:14;6:2,16;15:19; | 57:21 | 8,12,15,17,22,25; | 54:7 |
| turnout (1) | 20:7,10,23;21:8;24:3; | versus (1) | 12:6,11,15,16,20,24; | wherever (2) |
| 61:2 | 30:24;31:1;34:16; | 10:22 | 13:3,9,12,20,21; | 30:8;69:22 |


| $\begin{gathered} \text { whichever (1) } \\ 7: 17 \end{gathered}$ | $\begin{aligned} & 4: 10,11,13 ; 5: 7 ; 6: 8 \\ & 76: 20 ; 78: 21 ; 79: 4,12 \end{aligned}$ | $\begin{array}{\|r\|} \hline 101(\mathbf{1}) \\ 74: 17 \end{array}$ | $\begin{array}{\|c} 77: 19 \\ \mathbf{2 0 0 ( 1 )} \end{array}$ | $\begin{array}{\|l} \text { 3914.47723-06 (1) } \\ 54: 18 \end{array}$ |
| :---: | :---: | :---: | :---: | :---: |
| White (1) | wrong (1) | 11 (1) | 22:14 |  |
| 49:4 | 42:21 | 63:17 | 2000 (1) | 4 |
| whitewash (1) | wrote (1) | 120 (1) | 28:11 |  |
| 36:13 | 68:8 | 26:22 | 2001 (2) | 40 (2) |
| whole (6) |  | 123 (2) | 34:13;44:22 | 48:11;59:7 |
| 20:4;24:24;25:22; | Y | 55:10,15 | 2007 (2) | 41 (1) |
| 51:8;58:21;67:15 |  | 125 (1) | 22:22;25:19 | 60:23 |
| wide (1) | yards (2) | 65:3 | 2008 (2) |  |
| $24: 4$ | 56:8;68:25 | 129 (2) | 44:24;68:2 | 5 |
| 28:18 | 11:10;22:15,25; | 12-inch (5) | 45:4 | 5 (2) |
| wife (3) | 24:1,2;65:17 | 63:9,24;65:5,7,17 | 2010 (2) | 63:17;70:13 |
| 22:24;23:16,18 | years (40) | 13 (1) | 23:2;56:25 | 50 (3) |
| WiFi (2) | 13:2,15;16:15; | 63:16 | 2011 (3) | 37:5;65:24;66:4 |
| 20:3,7 | 22:13,22,23,24;23:1, | 13th (1) | 9:25;10:8;55:9 | 55 (1) |
| willing (2) | 3,3,17,19,22;25:15, | 3:12 | 2012 (2) | 44:18 |
| 42:20,21 | 16,18,20;33:3,17; | 14 (3) | 30:7;55:20 | 57 (2) |
| wish (4) | 34:14;35:17,18;36:9, | 8:23;55:22;63:15 | 2013 (2) | 45:12;69:17 |
| 6:7,13;24:11;49:9 | 24;37:5;43:23;45:2,4, | 140 (3) | 47:15;56:14 | 59 (1) |
| wishes (1) | 14;46:2;53:24;59:7; | 26:22;30:2;55:15 | 2015 (2) | 49:4 |
| 7:6 | 69:8,11,24;74:19,20; | 142 (1) | 28:10;47:16 |  |
| wishing (1) | 75:14;76:3,3 | 30:4 | 2017 (5) | 6 |
| $\begin{gathered} \text { 6:10 } \\ \text { within (3) } \end{gathered}$ | $\begin{array}{\|r\|} \hline \text { yellow (2) } \\ 9: 24 ; 10: 1 \end{array}$ | $\begin{aligned} & \text { 14-year-old (1) } \\ & 36: 10 \end{aligned}$ | $\begin{aligned} & 5: 25 ; 6: 1 ; 26: 12 \\ & 45: 15 ; 79: 2 \end{aligned}$ | 6\% (1) |
| 41:9;55:15;65:16 | Yep (1) | 15 (1) | 228 (1) | 59:16 |
| without (4) | 17:12 | 10:23 | 37:3 | 60 (1) |
| 37:20,20;58:7; | yesterday (1) | 177 (2) | 2300 (1) | 79:10 |
| 66:23 | 31:2 | 63:10,11 | 66:7 | 61 (4) |
| word (1) |  | 180 (1) | 241 (1) | 55:11,13;56:18; |
| 25:19 | $\mathbf{Z}$ | 8:9 | 78:2 | 69:7 |
| words (1) |  | 190 (1) | 24-hour (1) | 66 (1) |
| 34:5 | zero (1) | 56:19 | 37:20 | 69:8 |
| Work (25) | 8:19 | 1982 (1) | 24-hour-a-day (1) | 6-inch (5) |
| 4:24;18:3,6,20,22; | zoning (1) | 44:17 | 46:23 | 63:25;64:4;65:4,6,8 |
| 30:23;31:7;37:23; | 56:14 | 1992 (1) | 24-hours (1) |  |
| 46:17,17;48:13; 50:21;55:18;62:17, | 0 | 56:6 | 25 (2) | 7 |
| 18;67:11;70:4,13,16; |  | 22:9 | 10:19;63:12 | 7 (1) |
| 71:17,24;73:5,17; | 012 (1) | 1995 (1) | 26 (5) | 3:2 |
| 74:13,16 | 21:10 | 54:10 | 5:25;6:1;26:12; | 7:14A-15 (1) |
| worked (5) |  | 1996 (1) | 68:4;79:2 | 4:6 |
| 54:6,8;56:10;59:7; | 1 | 56:6 | 26th (1) | 70 (1) |
| 65:16 |  | 1998 (2) | 6:3 | 75:14 |
| workers (1) | 1 (1) | 8:25;12:3 | 27th (1) | 75 (1) |
| 57:2 | 30:18 | 1-C (1) | 3:11 | 65:1 |
| working (3) | 1,000 (1) | 67:22 | 280 (1) | 75,000 (1) |
| 25:1,1;51:18 | 64:14 | 1-D (1) | 67:17 | 68:6 |
| Works (7) | 1,200 (1) | 67:23 | 2-inch (2) | 76 (2) |
| 3:6,20;4:2;5:1,15; | 55:22 | 1st (1) | 21:10;64:2 | 22:6,6 |
| 32:16;78:18 | 1,400 (1) | 22:20 | 2-inches (1) |  |
| worksite (1) | 10:18 |  | 64:1 | 8 |
| 44:17 | 1,600 (1) | 2 |  |  |
| worries (1) | 68:7 |  | 3 | 8 (1) |
| 30:20 | 1.5 (1) | $2,000(2)$ |  | 63:18 |
| worst (1) | 31:2 | 63:9;64:17 | 3,200 (1) | 8,100 (1) |
| 43:14 | 10 (3) | 2,300 (1) | 68:4 | 68:5 |
| write-up (1) | 10:23;21:20;63:25 | 68:3 | 300 (2) | 8:57 (1) |
| 63:11 | 100 (1) | 2,400 (1) | 22:22;23:16 | 78:13 |
| writing (1) | 64:15 | $68: 3$ | $35(6)$ | 84 (1) |
| 54:17 | $100 \% \text { (3) }$ | $20(4)$ | $35: 18 ; 45: 14 ; 74: 19,$ | 47:25 |
| written (9) | 30:23;73:16;74:6 | 10:19;45:12;63:12; | $20 ; 76: 2,3$ |  |



