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SUFFOLK COUNTY WATER AUTHORITY

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LONG ISLAND COMMISSION FOR AQUIFER
PROTECTION
PUBLIC HEARING

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October 17, 2016
6:00 P.M.

1550 Franklin Avenue
Mineola, New York

1 B E F O R E:

2 FRANK KOCH - Chairman

3 DON IRWIN - Nassau Department of Health

4 STAN CAREY - Nassau Suffolk Water Commissioners

5 CHRIS OSTUNI - Nassau Legislature

6 BRIAN SCHNEIDER - Nassau County Executive's Office

7 JOSEPH DEFRANCO - Nassau Department of Health

8 JOHN MILAZZO - Attorney for SCWA

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1 (Whereupon Chairman Koch called the
2 meeting to order and introductions of panel
3 members were given.)

4 MR. COLABUFO: Thank you, Frank,
5 appreciate it. As Frank said, my name is
6 Steve Colabufo, I'm the water resources
7 manager at the Suffolk County Water
8 Authority. On behalf of LICAP, I'm pleased
9 to present a summary of the State of the
10 Aquifer Report. The report is a culmination
11 of about two years worth of work by many
12 different members of LICAP, and provides
13 some basic information on water supply,
14 groundwater science, and water quality and
15 quantity issues facing Long Islanders.

16 For those who may not know, LICAP was
17 formed in 2013. It's main purpose is to
18 address water quality and quantity issues
19 facing Long Islanders on a regional basis.
20 Its members represent water suppliers,
21 political office holders, regulators,
22 scientists, civic groups from both counties
23 and from all aspects of the water industry
24 on Long Island. This slide is kind of a
25 summary of all those who comprise LICAP

1 including all public water suppliers, which
2 number more than fifty between Nassau and
3 Suffolk, Nassau and Suffolk Health
4 Departments, Nassau and Suffolk Executives
5 and Legislatures, as well as the New York
6 State DEC, Department of Environmental
7 Conservation, and the US Geological Survey.

8 This slide here is kind of just an
9 assortment of all the logos of all the
10 agencies and organizations that have been
11 part of LICAP. My apologies to any who
12 didn't appear on the slide, but suffice it
13 to say it's just a huge collidoscope of
14 agencies and organizations throughout Long
15 Island dedicated to solving some of these
16 problems that are facing Long Islanders.

17 There's voting and nonvoting members of
18 LICAP. These nine smiling faces are the
19 voting members of LICAP, some of which are
20 represented behind me. Nonvoting members
21 include participants from numerous Nassau
22 and Suffolk agencies and legislative bodies.
23 Also shown at the top are the legislative
24 sponsors for the bills that eventually
25 created LICAP.

1 LICAP established two subcommittees
2 early on whose function is to investigate
3 and report on different types of water
4 related issues as part of an overall
5 groundwater resources management plan, and
6 that's the next step for LICAP to do after
7 the State of the Aquifer Report. I'm the
8 chair of the first subcommittee there, Water
9 Resources and Infrastructure subcommittee,
10 and we're involved in investigating long
11 term risks to Long Island's water resources.
12 Bill Merklin of DMB Engineering chairs the
13 Water Resources and Opportunity
14 subcommittee, and that subcommittee is
15 investigating more short term issues
16 effecting Long Island's water supply. The
17 groundwater management plan is in the works
18 and is scheduled for release later next
19 year. It will include an investigation of
20 about seventeen or eighteen different
21 specific topics relating to groundwater and
22 water supply on Long Island, everything from
23 saltwater intrusion to geothermal systems to
24 the Lloyd Aquifer and just about everything
25 in between. All of that will be reported on

1 and included as a specific separate chapter
2 within the groundwater management plan, so
3 stay tuned for that, that should be sometime
4 late next year.

5 That brings us to tonight's topic, the
6 State of the Aquifer Report. As Frank
7 mentioned, the latest draft version is
8 available for reading and downloading and
9 printing on the LICAP website, which is
10 www.LIAquiferCommission.com. I'll have that
11 information on the last slide before I
12 finish my presentation.

13 The report is a culmination of about two
14 year's worth of work. It's a collaboration
15 by numerous members of LICAP. I've been the
16 chief author and editor, but a lot of
17 different people, agencies, and
18 organizations have contributed to it.

19 From the outset, the State of the
20 Aquifer Report was intended to be a nice
21 easy to read informative document providing
22 information to Long Islanders about water
23 supply community, including consumers,
24 teachers, students, and other people who are
25 not career water professionals. It includes

1 sections on general groundwater information,
2 water use, conservation, water quality
3 issues, and a whole host of other things.

4 The current draft, as I said, is available
5 to be downloaded off the website, we have
6 some printed copies out there too, and we do
7 expect people to submit their comments about
8 the report to LICAP. It won't be considered
9 to be final until we've heard from the
10 public, and then once that's final, it's
11 supposed to be updated every year, so next
12 year will have some similarities, but
13 numerous different topics that will be
14 composited to next year's State of the
15 Aquifer Report. So in the next couple of
16 minutes, I'll summarize a few things about
17 what's in the State of the Aquifer Report.

18 Well, to cut to the chase, early on we
19 put in a statement about what we think is
20 the actual State of the Aquifer, and the
21 best way we can describe it is as a valued
22 natural resource. It certainly faces
23 challenges both to its overall quality as
24 well as quantity. Fortunately though there
25 are a myriad of agencies that supply and

1 oversee and regulate groundwater in general
2 and drinking water specifically on Long
3 Island, and they're listed briefly there on
4 this slide, and they include over fifty
5 water suppliers through Nassau and Suffolk
6 Counties, both county health departments,
7 the DEC and the US EPA. The actual report
8 includes sections on numerous different
9 topics as shown in this slide including the
10 basics of groundwater, water quality versus
11 quantity issues, testing and regulation of
12 the groundwater and drinking water, and also
13 a discussion of the water quality and
14 quantity balancing act that occurs in areas
15 between regional sewers and on site septic
16 systems and cesspools. There's an extensive
17 discussion of that. So I'll highlight some
18 of these in the next couple of slides. We
19 wanted to make sure that everybody who reads
20 the report knows where the water comes from,
21 which is basically right below your feet
22 within Long Island's aquifers. An aquifer
23 is simply a permeable geologic formation
24 that stores and yields groundwater. On Long
25 Island there are three major aquifers shown

1 here on this diagram in the blue writing,
2 Magothy being on of them. There's a couple
3 of minor aquifers that are contained in
4 small areas within Nassau County, they're
5 not shown in this diagram here. All the
6 aquifers consist of unconsolidated sand and
7 gravel. There's approximately sixty-five
8 trillion gallons of groundwater stored
9 within the aquifer system. Only about five
10 to ten percent of it is actually
11 withdrawable from the aquifer, but it still
12 represents a large volume of water under our
13 feet. All the groundwater is derived from
14 precipitation, there's no underground rivers
15 from Connecticut or any of that kind of
16 stuff, it's just all from precipitation, no
17 external includes of water into the aquifer
18 system at all. And realizing the importance
19 of the aquifers to so many people, the EPA
20 designated Long Island's aquifers as a sole
21 source aquifer back in 1978.

22 This slide shows or illustrates the
23 water cycle. It includes pretty much
24 anything and everything that could happen to
25 water as it moves through the system from

1 surface water to rain water to groundwater.
2 There's really no beginning or end to it,
3 water is in constant motion throughout the
4 system albeit fairly slowly. Basically
5 water, just to kind of reiterate the cycle,
6 evaporation from surface water bodies or
7 transpiration by plant activities into the
8 atmosphere causes water vapor to enter the
9 atmosphere and rise, as the water vapor
10 rises higher and higher, it cools, forms
11 clouds, the clouds thicken and produce
12 precipitation, precipitation -- about fifty
13 percent of it enters the aquifer system as
14 what's known as recharge. The amount of
15 rain entering the aquifer amounts to about
16 one million gallons a day per square mile of
17 water entering the aquifer system when you
18 average it out over the whole year and over
19 the entire island. Like I said, that's the
20 only source of water into the Long Island
21 Aquifer System. This slide appears in the
22 State of the Aquifer Report with an
23 explanation of all the different terms I
24 just mentioned really quickly. Once it's in
25 the aquifer system it moves from high

1 elevation areas to low elevation areas by
2 gravity, it's nothing more magical than
3 that. This diagram illustrates all those
4 processes involved in the water cycle.

5 Now, potable water supply on Long Island
6 comes from about thirteen hundred or
7 fourteen hundred public supply wells located
8 all throughout the island. Long Island
9 water supply is very decentralized. We have
10 numerous individual sources, local supply,
11 local distribution, and local consumption,
12 unlike the New York City system, which has
13 distant reservoirs and lengthy
14 transmissions, it's all local here on Long
15 Island. And you can see the areas of more
16 intense populations, Nassau, western Suffolk
17 have a much more intense concentration of
18 well field facilities and therefore a more
19 intense water use pattern to them, and
20 that's kind of an interesting subject for
21 Long Island water suppliers. As you know,
22 suburban landscapes and seasonal population
23 means much greater water use in the summer
24 than in the winter. This graph kind of
25 illustrates that, I'll explain it a little

1 bit. This is a graph of the Suffolk County
2 Water Authority System for a twenty-four
3 hour day for about six different days
4 throughout the year, and the year I believe
5 is 2007. So we have midnight all the way
6 over here, noon in the middle, midnight over
7 here, and these are seven different days
8 during the course of the year. You can
9 notice a couple of interesting trends. For
10 one thing, 5:00 in the morning, that's the
11 lowest water use during the winter days, and
12 that typically is about twenty-five thousand
13 gallons a minute at the Suffolk County Water
14 Authority System throughout the system.
15 Other water suppliers may not pump the same
16 volume as us, but they have a similar daily
17 pattern within the day. In contrast to
18 that, a summer day we're pumping about four
19 hundred and ninety thousand gallons a minute
20 at 5:00 in the morning, mostly in response
21 to sprinklers coming on. That's a twenty
22 fold increase in water use at that time of
23 the day largely in response to automated
24 sprinklers. And it suggests that at least
25 if there were a fire to occur at that time

1 of the day, it could create a significant
2 public safety problem because pretty much
3 every well in the system is on to satisfy
4 for the most part sprinkler demand, so it's
5 a significant point to take away from. So
6 that's why we've termed this the irrigation
7 situation because basically it's largely as
8 a result of lawn irrigation is why we have
9 this situation.

10 That's an example of a water quantity
11 issue, there's also numerous water quality
12 issues all throughout Long Island many of
13 which are tied to specific land uses. Since
14 we're all living on top of our water supply,
15 just about everything we do has at least a
16 possibility of effecting water quantity,
17 quality, or both. This slide illustrates
18 the type of water quality impacts that can
19 be expected from different land uses, kind
20 of what I call a contaminant signature or
21 contaminant footprint. And that's not
22 because of some catastrophe or major spill
23 or mishandling or something like that, it's
24 strictly the nature of the land use. For
25 example, we have this particular little

1 cartoon it's residential development using
2 cesspools and septic tanks, which is what
3 the little barrel looking things are that
4 may lead to contamination into the aquifer.
5 You have agricultural land use, golf
6 courses, residential land use, and each one
7 of those imparts its own contaminant
8 signature or footprint into the aquifer, and
9 the shallow groundwater quality beneath
10 these areas can oftentimes reflect that land
11 use. So again, a contaminant footprint or
12 signature with each land use.

13 This particular slide shows one specific
14 contaminant footprint for one contaminant,
15 nitrogen, for several different land uses
16 that we find throughout the island. This
17 particular case, nitrogen, as you might
18 expect, traditional agriculture, vegetables,
19 potatoes, what have you has the highest
20 nitrogen footprint, typically twelve to
21 thirteen milligrams per liter in shallow
22 groundwater beneath agricultural areas. The
23 drinking water standard is ten, I've shown
24 that in the red circle there, so oftentimes
25 shallow groundwater beneath agricultural

1 areas is above the drinking water standard
2 for nitrogen. Now, in areas served by
3 private wells, that could mean a significant
4 issue. Areas served by public wells, it's
5 not as big of a deal because public water
6 suppliers have to meet drinking water
7 standards for all contaminants, including
8 nitrogen. More new age type of agriculture,
9 such as vineyards, have a much lower
10 nitrogen footprint, typically around six
11 milligrams per liter. And as far as
12 residential land, it all depends on whether
13 the area is sewered or not and then it
14 depends on the lot size. In this particular
15 case, I've shown the nitrogen footprint for
16 unsewered residential areas for a couple of
17 different lot sizes. As you can see, half
18 acre lots typically have a nitrogen
19 footprint of about six milligrams per liter,
20 two acre lots have a very minimal nitrogen
21 footprint. This is for unsewered areas.
22 For sewered areas it's a whole different
23 story, because sewage is conveyed elsewhere
24 outside of the area. This goes to show you,
25 again, contaminant footprint and signatures

1 relating to different land uses.

2 This slide kind of illustrates the idea
3 of how water from a particular area on land
4 may migrate or may be pulled into a
5 particular well stream. The contributing
6 areas or the zones of capture or however you
7 want to term it are shown here by these
8 different color shades. In this particular
9 case, we're showing a shallow glacial well
10 here, we're showing its contributing area by
11 this red blob, and in this particular case,
12 those wells are effected by land uses in
13 close proximity to the well. In this little
14 cartoon, it's residential land use using
15 cesspools and septic systems. The contrast
16 to that would be something like this, a
17 deeper Magothy well screened below several
18 different impermeable clay units. In this
19 particular case, its effected by land uses
20 much farther away from the well. The
21 contributing area for this well is shown
22 here in this kind of grayish blob, and this
23 travel time from the distance of the
24 contributing area to the well screen can
25 sometimes be on the order of seventy-five to

1 a hundred years, whereas with a glacial well
2 it may be on the order of one to ten or
3 fifteen years. So it's a very complicated
4 situation, and until we ferret this all out,
5 you need a computerized groundwater model to
6 make those determinations. Fortunately one
7 has been developed starting in the late 80's
8 in Nassau County into the mid to late 90's
9 in Suffolk County, and the computer model
10 can simulate groundwater flow, and the
11 computer model can delineate where these
12 contributing areas or capture zones are on
13 the land surface that contribute flow to the
14 well. Again, it's fairly broad general
15 terms. It is a regional model. It uses
16 basic data that's provided by the US
17 Geological Survey over years and years of
18 study, but it gives us a pretty good idea of
19 generally speaking where the water comes
20 that a well pumps. So in this particular
21 case you see the well location indicated by
22 the circle, that's the well field location.
23 These lines are different travel time
24 intervals, this is five to twenty-five, this
25 is twenty-five to fifty, fifty to

1 seventy-five, seventy-five to a hundred.
2 This shows the time it takes from the land
3 surface to the well screen, so in this case
4 it's seventy-five to a hundred years. Also
5 shown here are the land uses within each of
6 those zones. You have a bunch of different
7 land uses, again, each with its own
8 contaminant footprint that it may impart to
9 groundwater and therefore possibly to this
10 particular well. You can see there's a lot
11 of commercial and industrial land use in the
12 five to twenty-five year capture zone. And
13 so this is a water authority well, we may
14 anticipate potentially some contamination
15 issues in the near future based on the
16 information you see here. Now, we can kind
17 of marry that computer modeling technology
18 with existing GIS or Geographical
19 Information System technology, and you can
20 kind of get an idea of what this all looks
21 like on a regional basis. I can show you
22 there's all the well fields in this area,
23 this is Medford in central Suffolk County
24 are shown here by the blue squares. The
25 well from the previous graphic is shown by

1 the red arrow, and the next slide kind of
2 shows all the contributing areas to all the
3 wells pumping simultaneously as they
4 currently are. And you can see a couple of
5 things, these capture zones or contributing
6 areas kind of fit together almost like
7 fingers. Another thing that's interesting
8 to see is that for some of these Magothy
9 wells the zone of capture does detach
10 itself, it is sometimes far away from the
11 actual well field itself. There are some
12 areas here where they're not, this is more
13 of a conventional look at the way you think
14 of a capture zone, kind of like that little
15 pink blob you saw in the last slide, but for
16 a lot of these deeper Magothy wells, the
17 capture zone is fairly far separated from
18 where the well is, kind of like that little
19 gray blob you saw on the previous slide.

20 Okay. Your drinking water undergoes a
21 lot of testing and regulation, very
22 extensive. All water suppliers are required
23 by law to sample for a minimum of a hundred
24 and forty compounds and meet the drinking
25 water standards for all of them. Some

1 suppliers do sample from more than what's
2 required by law, probably depending on
3 what's going on within their districts, and
4 some, the Water Authority being one, will
5 actually impose stricter standards than what
6 the government imposes. I'll give you an
7 example of that in a couple of minutes. So
8 we go into the State of the Aquifer Report,
9 there's a very -- there's an extensive
10 treatment of testing and regulation and what
11 a part per million is and what a part per
12 billion is and all that kind of stuff, so
13 there's a lot of reading on this in the
14 State of the Aquifer Report.

15 So there's several sections of the
16 Report that discuss different water quality
17 problems and issues. I'll highlight a
18 couple of them here. We discuss at great
19 length chloride contamination, and that
20 includes lateral saltwater intrusion as is
21 happening in parts of western Nassau. We
22 talk about vertical saltwater upconing,
23 which is a problem common to the Water
24 Authority in eastern Suffolk. We also
25 discuss an emerging chloride contamination

1 issue, which is road salting. We also
2 discuss volatile organic contaminants,
3 pharmaceuticals and personal care products,
4 PPCP's, which includes pretty much anything
5 and everything you put on or in your body
6 has the potential to show up in the
7 groundwater. We talk about nitrogen impacts
8 for groundwater, surface water, and human
9 health impacts, as well as sections on
10 pesticides and emerging contaminants. A
11 couple of pages is devoted to each of those
12 in the report, so I'll highlight a couple of
13 them here. Just about everybody has heard
14 something about lateral saltwater intrusion.
15 On Long Island it's happening in parts of
16 western Nassau, both the north shore and the
17 south shore, and it happens fairly slowly
18 over long periods of time basically from
19 over-pumping of wells on land, which tend to
20 lower the water table and kind of reverse
21 the natural outward flow of groundwater from
22 land to sea. When that happens, higher
23 chloride water, seawater intrudes into the
24 land surface. These contours -- these
25 diagrams are taken from the US geological

1 survey report. These lines show areas of
2 high chloride concentration. Closer
3 together, you can see the chlorides are
4 higher, and the stars here indicate areas on
5 the Great Neck and Manhasset Neck
6 Peninsulas where saltwater intrusion is
7 known to have occurred. Saltwater intrusion
8 of this type has also occurred on the south
9 shore of Nassau, there's a lot of
10 information on it in the report, I don't
11 have any of that here, the graphics weren't
12 really all that good, but the report -- it's
13 in the report on several pages. Now,
14 eastern Suffolk is slightly different. We
15 have a problem there called saltwater
16 upconing. That happens fairly rapidly in
17 response to the pumping of an individual
18 well at too high of a rate. This graphic
19 kind of shows that the saltwater interface
20 is at depth, once you pump too much water or
21 you pump at too high of a rate, the
22 saltwater interface rises closer and closer
23 to the well screen. When that happens, the
24 chloride levels increase, and hopefully when
25 you back off the pump rate in the winter the

1 saltwater interface recedes and the chloride
2 levels also recede. It doesn't always
3 happen that way. The Water Authority has a
4 lot of experience doing this with wells out
5 in Montauk, and here's an example of one
6 particular well and the chloride versus
7 pumpage issues that we had. The chlorides
8 are shown here in black bars, the pumpage is
9 shown by the white line. And you can sort
10 of see that initially as we pumped a lot of
11 water the chlorides increased, similarly we
12 backed off the pump rate and the chlorides
13 did decrease thank goodness, then we
14 increased the pump rate again not quite as
15 high as before, and the chlorides continued
16 to increase higher than they were before
17 despite our lower pump rate. We went
18 through this oscillation here for several
19 years, but eventually we kind of achieved an
20 uneasy truce with the chloride levels, and
21 once we backed off significantly back in
22 2003, the chloride levels did decrease and
23 stayed there because we were able to
24 maintain lower pumping rates. A lot of the
25 wells in Montauk were actively managed, the

1 pump rates were monitored very specifically,
2 and the chloride levels were sampled very
3 frequently to maintain that level that we
4 wouldn't go kind of beyond the point of no
5 return. Another thing that's interesting to
6 note here, the drinking water standard for
7 chlorides is two hundred and fifty
8 milligrams per liter, but at the Water
9 Authority we knew from our own experience if
10 you got much above about a hundred or a
11 hundred and twenty you wouldn't be able to
12 get back to the original low chloride
13 levels, so we imposed our own standard of
14 about half the State drinking water standard
15 because we knew from experience that if we
16 exceeded that we would lose some of those
17 wells. So we maintained pump rates at nice
18 low levels to try to keep the chloride
19 levels well below that hundred to hundred
20 and twenty level. The ultimate solution
21 came when we were about to construct a
22 pipeline from East Hampton into Montauk
23 about five miles long, supply the bulk of
24 Montauk's water from outside of Montauk, and
25 we were able maintain those wells in Montauk

1 at a much lower level and never really had
2 an issue again with chlorides because we
3 could supply the bulk of the water off of
4 the Montauk Peninsula.

5 Road salting is a new twist on the issue
6 of chloride contamination. We notice that
7 at the Water Authority, and I believe some
8 other Nassau suppliers we noticed it as
9 well, we noticed that we were getting
10 elevated chloride levels in non-coastal
11 locations, so that raised a little bit of a
12 red flag. We also realized that road salt
13 has a slightly different chemical signature
14 than either salty groundwater or seawater,
15 so analyzing the water chemistry in these
16 elevated chloride wells allowed us to make a
17 determination as to whether the impacts were
18 from road salt, or from either upconing or
19 saltwater intrusion. The other thing we did
20 at the Water Authority is we set up a
21 realtime road salt impact monitoring station
22 in a cooperative agreement with the US
23 Geological Survey. There's a shallow
24 monitor well in a drainage sump that where
25 the storm water from about a one mile long

1 stretch of County Route 48, which is the
2 main drag going down the north fork, the
3 storm water drains into this one sump. The
4 US Geological Survey constructed a shallow
5 monitor well at that sump, and it monitors
6 what's known as the specific conductance of
7 the water as it enters that sump. Specific
8 conductance is simply a measure of how much
9 dissolved material is in the water that
10 enters the sump. In this case it's sodium
11 and chloride because we know the impacts we
12 are going to get are from road salt.
13 Typical groundwater conductance is about
14 five hundred to a thousand, and you can see
15 here that we were getting hits of back in
16 2014 of twenty thousand, fifteen thousand,
17 so it's pretty significantly salty water
18 that was going in after these snow melt
19 events. Okay. Back in last year, March of
20 2015, we had one event where the storm water
21 specific conductance was forty thousand,
22 which is interesting because ocean water has
23 a specific conductance of fifty thousand, so
24 for one brief period of time the water
25 entering the sump was almost as salty as the

1 ocean. It just goes to show you just how
2 much road salt we use to keep our roads safe
3 in the winter, and it also shows you that
4 activities on land, as I mentioned before,
5 no matter how beneficial or seemingly benign
6 do have water quality implications. So we
7 were glad we set this monitoring station up
8 so we could monitor what's going on here
9 next to one of our wells pretty closely.

10 Okay. There are several sections in the
11 Report about volatile organic compounds or
12 volatile organic chemical, VOC
13 contamination. The two main ways of
14 treating for VOC contamination are, like you
15 see here, granular activated carbon
16 adsorption. This consists of twelve foot
17 diameter by roughly ten foot high vessels
18 filled with the carbon medium, which is just
19 sand size grains of either anthracite coal,
20 or coconut shells, or some highly
21 carboniferous material. As the water is
22 pumped through the top of the vessel, exits
23 out the bottom, the column of carbon media
24 takes out the organic contamination and
25 contaminant free water can then be pumped

1 into the distribution system. Another
2 technique is packed tower aeration or air
3 stripping. In this particular technique,
4 water is pumped to the top of the tower,
5 it's allowed to cascade vertically through
6 this sort of plastic packing material which
7 breaks up the water flow. Simultaneously
8 air is pumped vertically from the bottom to
9 the top so the water goes in one direction,
10 the air goes in the other direction and
11 removes or strips out the contamination,
12 which is then -- air is then vented into the
13 atmosphere or contained secondarily in
14 another carbon filter system for the vapor
15 phase. And these two systems are in use all
16 over Long Island and described pretty
17 extensively in the State of the Aquifer
18 Report.

19 Okay. Another interesting tool that was
20 developed at LICAP is known as WaterTraq.
21 It's a software program that allows anyone
22 to map water quality issues throughout Long
23 Island. It's actually up and running on the
24 LICAP website as we speak. This is just a
25 quick example of one type of inquiry that

1 anybody out there can do. This is an
2 illustration of public supply wells that
3 have had nitrate levels above the drinking
4 water standard of ten milligrams per liter
5 during the year 2015. So of the fourteen
6 hundred public supply wells on Long Island,
7 ten actually had levels above ten milligrams
8 per liter in 2015. The table down here at
9 the bottom shows the remedial technique that
10 each water supplier did in order to cope
11 with that hit of above ten milligrams per
12 liter. Anybody can utilize the software,
13 search for any contaminant or any compound
14 you want, iron, manganese, chlorides,
15 whatever at whatever concentration you want.
16 Specify the contaminant, concentration
17 you're interested in, and the red dots come
18 up on the map, show you where those issues
19 have occurred.

20 Okay. We spent a lot of time in the
21 State of the Aquifer Report describing the
22 differences in water quality and quantity in
23 areas that are sewerred versus not sewerred.
24 Sewering is kind of like a Tale of Two
25 Counties here on Long Island. You can see

1 the blue areas are the areas that are
2 sewerred with regional municipal sewers in
3 Nassau and Suffolk. Nassau is about eighty
4 to ninety percent sewerred, Suffolk is only
5 about thirty percent sewerred. Fully seventy
6 percent of Suffolk residents require
7 cesspools or septic systems for their
8 domestic wastewater disposal. And the use
9 of them has interesting water quality and
10 water quantity implications. I've shown
11 graphs here from shallow creeks because they
12 are reflective of the groundwater in the
13 vicinity of them discharging into it. You
14 can see here in Nassau County, this is
15 Massapequa Creek, as sewerred kind of took
16 hold in the area you can see the quantity of
17 water, the discharge of the creek has
18 decreased over the years pretty
19 significantly, a downward trend. The other
20 side of the coin is nitrate levels of the
21 water in the creek have improved over time,
22 they've decreased from above drinking water
23 standards back in the day to down in the
24 single digits now. So decreasing water
25 quantity but improving water quality in

1 areas that are sewerred. Now, the Carman's
2 River in eastern Suffolk tells a slightly
3 different story. The Carman's River is
4 located in an area that's fairly lightly
5 populated, but the population that is there
6 utilizes cesspools and septic systems for
7 domestic wastewater disposal, there are no
8 sewers in the area, and as you can see from
9 these two graphs, the discharge, the
10 quantity of water is pretty stable over
11 time, hasn't really decreased even though it
12 has fluctuated up and down a lot, it hasn't
13 really decreased, but the nitrate levels
14 have shown a slow steady increasing trend
15 from beginning to end. Even though they're
16 low, they're two to three milligrams per
17 liter, there's a definite increasing trend
18 in nitrates, and that's to be expected with
19 the use of cesspools and septic systems,
20 you're kind of circulating the same water in
21 the system over and over again. So
22 unimpeded quantity but impeded quality as a
23 result of cesspools in eastern Suffolk.

24 We do spend a couple of pages of the
25 State of the Aquifer Report discussing the

1 Grumman Plume in Bethpage. As you can see
2 here, there's the two little splotches
3 indicate the extent of two different areas
4 of the plume. You can see the groundwater
5 flow direction and the direction the plume
6 is migrating. The blue flags here are
7 public supply well fields in the area, and
8 there are some public supply wells that are
9 located within the plume that probably had
10 to deal with various contamination issues
11 already, there's a couple more down here
12 that may be receiving contamination from the
13 plume in the near future. Even on this side
14 you can see, these wells here have kind of
15 deflected the course of the plume, kind of
16 curled it around to the west a little bit
17 where it otherwise would not have. So we
18 describe this in pretty good detail in the
19 State of the Aquifer Report and what may be
20 -- what Massapequa water or South
21 Farmingdale may be facing in the near
22 future.

23 And then finally we have a section on
24 pesticide contamination. This is mainly a
25 problem in eastern Suffolk. Eastern Suffolk

1 or Suffolk County historically has been the
2 number one county in New York State for
3 agricultural production based on the dollar
4 value of the crops produced. I think in the
5 last couple of years it might have been
6 bumped down to number two or three because
7 greek yogurt is huge up in the southern
8 tier, but still there's over twenty thousand
9 acres of agricultural land in Suffolk. This
10 productive agriculture does come with a
11 water quality string attached. About half
12 of the Water Authority wells that serve the
13 north fork, a big agricultural area, have
14 some type of treatment for pesticide
15 contamination. I also mentioned earlier the
16 nitrates inherent in agricultural land use,
17 and it's also the part of Long Island where
18 a lot of people still rely on private wells
19 for their supply. There's about forty-five
20 thousand private homeowner wells in eastern
21 Suffolk serving roughly a hundred thousand
22 people, and between nitrates and pesticides,
23 agricultural contamination could represent a
24 significant public health issue for people
25 out there.

1 So in conclusion, we can conclude with
2 this: So the quality of your public
3 drinking water is excellent, meeting or
4 exceeding all federal or state standards,
5 but Long Island groundwater in general and
6 drinking water more specifically does face
7 challenges. Past and present land uses
8 impact water quality and quantity. Some
9 impacts have affected drinking water, some
10 impacts haven't affected drinking water
11 resources, but have been more of an
12 environmental impact affecting shallow
13 groundwater, ecosystems, certain aquatic
14 wildlife, things like that. Maybe not a
15 public health issue, but certainly an
16 environmental issue that needs to be
17 addressed. Certain specific contaminants,
18 as I mentioned, present potential health
19 risks, saltwater, VOC's, nitrates,
20 pharmaceuticals, but suppliers are required
21 to meet all standards for those
22 contaminants, and LICAP was formed with the
23 very purpose of addressing these
24 contaminants in a coordinated and regional
25 manner.

1 Finally, this is where you can send
2 comments to. You've got the website
3 LIAquiferCommission.com. There's also a
4 State of the Aquifer web page maintained by
5 the US geological survey, and that web
6 address is shown here as well, as well as
7 the mailing address, e-mail address, and
8 phone numbers if you want to send in or call
9 in a comment regarding the State of the
10 Aquifer Report.

11 With that, I'll conclude and hand it off
12 to Frank. If you want to address the panel,
13 you can by using this mic on that side.

14 MR. KOCH: Again, I stress if anybody
15 wants to talk, please fill out a card.
16 We'll still give you an opportunity to talk
17 anyhow, but the card will help. Let's start
18 it going right away. Ladies first, New York
19 Assemblywoman Michelle Schimmel, please.

20 MS. SCHIMMEL: Thank you so much for
21 allowing me to speak, and I want to thank
22 you for this. I have been -- I would say
23 for most of the tenure of my assembly
24 tenure, water has been a prime concern of my
25 district and of my office. And I live -- I

1 happen to represent western Nassau, and I
2 see former mayor, we had the Lockheed
3 Martin, we just got an ROD from the DEC
4 recently, seventeen years in the making, we
5 finally got it, we're going to do
6 remediation. And I want to thank you
7 because -- I want to thank you, number one,
8 for talking, talking about it. The more you
9 talk about it, the more everyone is going to
10 start paying attention. This is not part of
11 my questions. You must keep talking. What
12 I've learnt as a legislator is the minute
13 you take your foot off the gas pedal, the
14 car slows down. So keep talking. You know,
15 unfortunately a crisis is a terrible thing
16 to waste. I'm not saying we're in crisis,
17 but I did do the hearings in Hoosick Falls,
18 we were at the one in Suffolk County, we
19 don't want to be there. So keep talking
20 because it's all going to be good, but I do
21 want to say I encourage you, that study,
22 that groundwater study is critical and I'm
23 walking, Brian, I call him a lot, we got to
24 get the funding going for this. We have
25 some money coming, I'm working on it. If I

1 could pay for it, and there may be ways, I
2 want it on the record that I'm willing to
3 put up some capital money for this study
4 because we need a real robust study of
5 groundwater. I also want to thank you for
6 talking about quantity and quality.

7 Oftentimes it's siloed. We talk about
8 quality of water usually as it relates to
9 surface water, and quantity with
10 groundwater. Well, guess what, it's one
11 system, it's all connected, and that's what
12 I want to talk to in my comments. I will
13 not be long.

14 As one of my questions is with the back
15 story of Nassau County already from studies,
16 fifteen percent in over-pumpage in Nassau
17 County already. I want to look at sewerage.
18 I think we silo things off in terms of how
19 water is looked at, in terms of how every
20 government looks at everything. As Long
21 Islanders looking to sewerage reduce
22 nitrogen load, are we looking -- and I'm not
23 putting anyone on the spot -- towards best
24 practices? I know Line App is working on
25 it, in fact one of my staffers left me to

1 work with Line App, but I'm very concerned
2 about water conservation because with
3 increased sewerage, depending on what they
4 decide, there is generally an up tick in use
5 of maximum pumpage for these sewers, and it
6 will be in both counties. And there is no
7 requirement I have learned for reporting
8 water usage for water treatment plants. I
9 happen to know, I'm very active with the
10 sewer districts, they use a lot of water,
11 and is there a look to see if maybe we can
12 get some reporting from the water treatment
13 plants as to how much water they're using
14 because we're looking to increase that
15 across both counties, that is, you know,
16 we've got to look ahead. There's a
17 mountain, what goes beyond the mountain?
18 I'm asking about that. It's right in your
19 page thirteen, I won't read it, I'm just
20 going to read some of it that you have the
21 regional sewerage with ocean discharge of
22 the effluent as practiced in almost all of
23 Nassau County and parts of Suffolk County
24 will reduce, yes, as you had mentioned in
25 that excellent summary, the pollutant load

1 to the upper glacial aquifer from domestic
2 and industrial wastewater. However,
3 sewerage, we know, will also remove this
4 water, potable drinking water, fresh water,
5 from the aquifer system. So we've got to
6 look at the whole picture. Question about
7 economic development, and this is my
8 prejudice speaking for myself, usually what
9 follows sewerage is what? Economic
10 development. With that, increased density.
11 We talk about cool downtowns, we're looking
12 to get increased revenue. We talk about
13 sustainability. Sustainability and economic
14 development, we talk about transportation,
15 energy use, infrastructure, schools. Do we
16 ever talk about economic development in
17 terms of water usage? I have never at a
18 site plan review hear about water. What is
19 water? Is it sustainable in terms of we're
20 putting it in industrial parks, if we're
21 putting in a residential area, is water part
22 of that sustainability study of economic
23 development? And you can answer that. I
24 don't know, I've never -- maybe I'm not
25 going to the right hearings, I generally

1 don't hear that. It is not something that
2 we talk about, and as increased water usage
3 -- as Suffolk County gets more sewers, guess
4 what, a lot more revenue, more economic
5 development, where does it leave you guys in
6 terms of the water usage? And I don't want
7 to see Suffolk County end up like Nassau
8 County, ten years from now they say wow,
9 we're fifteen percent over-pumpage just like
10 Nassau County. And now is my question, now
11 is my question, I'm sorry, thank you for
12 indulging me. It is my understanding, and
13 it may be erroneous, that if a developer
14 wants to put in -- and I have nothing
15 against developers, but they want to put a
16 residence or commercial property or
17 industrial industry, is there a criteria for
18 water suppliers to say no in terms of no,
19 based on our pumpage, it is not sustainable,
20 can you say no? My understanding is for the
21 most part I've been told anecdotally that if
22 it's zoned correctly that it's not a
23 problem, we can provide the water. And
24 that's -- is that true, or you can say no?
25 I don't know if you're answering questions

1 today. Can you say no to a community or
2 developer that wants to put in something
3 that in your mind you're, like, wow, this is
4 a lot of water, can you say no?

5 MR. CAREY: Typically what happens is is
6 they have to furnish a demand letter to the
7 water district and the water supplier has to
8 determine whether or not they could supply
9 the water. Now, if it's a huge amount of
10 water, and they can't meet that demand, they
11 would have to apply for the DEC to add
12 another well field, so really it would fall
13 in the DEC's hands to make that final
14 decision.

15 MS. SCHIMMEL: That's great. But that
16 talks about another well field, that doesn't
17 talk about the pumpage in terms of the sole
18 source aquifer. At what point are we
19 hitting that mark? My point is that maybe
20 the study will tell us that critical level,
21 and I'm talking about saltwater intrusion
22 and even the way it moves. Do you get my
23 point? I don't know if I'm -- I'm not
24 always articulate.

25 MR. CAREY: I understand what you're

1 saying.

2 MS. SCHIMMEL: I know it counterbalances
3 what we do. We want to provide water, but
4 at the same token, I understand it falls to
5 the DEC, but are their standards for maximum
6 pumpage, do they essentially apply for a
7 variance and allow another well health to
8 open up, is that what generally is the case?
9 Because I've never seen a denial based on an
10 ask. And lastly, and this is my last
11 comment, and I really thank you all because
12 then don't worry, I'm leaving the assembly,
13 so you don't have to worry about it too much
14 longer.

15 MR. KOCH: One more minute, Michelle.

16 MS. SCHIMMEL: Conservation. At both
17 hearings, the big discussion -- well, not
18 big, a little bit about conservation, a lot
19 of the onus was we need education without a
20 doubt, but a lot of onus was put on the
21 homeowners and the public. I think we in
22 the government we as water suppliers have to
23 do more, and sometimes that means coming up
24 with best practice models that you can give
25 to legislators, that you can give to the

1 federal government like recycled water, like
2 changing the infrastructure, like taking
3 gray water -- I use the water gray water --
4 and putting it onto golf courses and septic
5 systems. That's something that is a bigger
6 -- we need a Manhattan project on water
7 conservation, not just telling people you
8 should water every over day or use sensors
9 for your watering in your home. This is an
10 issue that we need you to come to us with
11 real plans. Keep talking, but now we're
12 ready to talk big stuff, not just saving
13 water on alternate days for watering. Thank
14 you for indulging me.

15 MR. KOCH: Thank you, Michelle. Great
16 points. I think you'll find in the
17 groundwater resource plan coming out next
18 year a lot of that will be addressed, maybe
19 not all of it, but a lot of it. It's a
20 start.

21 Okay. Can we have Nassau Suffolk Water
22 Commission Association, Carl Schweizer.

23 MR. SCHWEIZER: Good evening, members of
24 the Long Island Commission on Aquifer
25 Protection. Thank you very much for

1 affording us the opportunity to comment
2 relative to the responsibility that you've
3 been assigned to each of you as it relates
4 to the State of the Aquifer Report. As
5 mentioned, my name is Carl Schweizer, I'm
6 water commissioner with the Hicksville Water
7 District, past president of Nassau Suffolk,
8 and past chairperson of Long Island Water
9 Conference. Today I'm also joined with Tom
10 Hand, past President, and Vincent Abbotello,
11 also a current vice president with the
12 Nassau Suffolk. So first I want to open up
13 by saying that we are hopeful that this
14 commission continues its good work and it's
15 allowed to continue its mission beyond its
16 initial charter. Our association emphasizes
17 sustainability at all times. A core
18 principal of our mission is to provide a
19 resource that is sustainable and to ensure
20 the protection and efficient management of
21 Long Island's natural aquifer groundwater
22 supply. While no one can predict the
23 future, we recognize that water industry
24 professionals, engineers, and scientists
25 utilizing hard scientific facts is a basis

1 for most accurately answer the question:
2 Will Long Island run out of water? Actions
3 governing our aquifer, its protection, its
4 sustainability should never be based on
5 political agenda or conjecture, but on
6 scientific data. Our association believes
7 that as large as the aquifer may be, it is a
8 finite natural resource requiring
9 understanding, appreciation, and dedicated
10 professional management, such as you, LICAP.
11 Saltwater intrusion, chloride contamination
12 is a serious situation confronting several
13 Long Island areas, and it includes intrusion
14 of water from Long Island Sound to the
15 Atlantic Ocean, and to a lesser degree, road
16 salt. While supplier with serious chloride
17 issues mus consider corrective actions and
18 alternative resources, regulations for the
19 use of road salt should be professionally
20 reviewed to keep salt out of the shallow
21 wells. Nitrates are most certainly a
22 contaminant of concern for water suppliers.
23 Fortunately, nitrate concentrations at
24 levels that are harmful are rare on Long
25 Island. Our association feels that the

1 nitrates, though certainly of concern to
2 respect the drinking water, do not pose a
3 serious threat or concern to our communities
4 as do the toxic plumes. Our association
5 also feels that nitrates should not be used
6 as a measure to advance any agenda to clean
7 up the surface waters. We, as well as other
8 water supplier, are strongly opposed to
9 charging any kind of fee or tax of our water
10 rates to advance any such agenda. Of
11 preeminent concern is the situation where we
12 clean up toxic plumes whose sources are well
13 known. It's dragged on for decades to the
14 disadvantage of local suppliers who are all
15 too often left to cope with the
16 circumstances that they did not create. The
17 stakes are at the highest order, and there
18 is no margin of error, and no excuse for
19 prolonging the inexcusable situation.
20 Delineation and complete remediation of such
21 problems must effectively be achieved. Our
22 association believes that the New York State
23 DEC must immediately and dramatically
24 improve its protection of Long Island's sole
25 source aquifer by proceeding with greater

1 vigilance, a clearer sense of community
2 purpose, and with far greater proactivity.
3 We believe that the DEC process of
4 investigation and action must be quickly
5 analyzed, evaluated, and streamlined in
6 order to be aggressive. A real world action
7 plan that can be instituted and implemented
8 for all plumes and to serve as a precedent
9 for any new plumes that may arise. Our
10 association is opposed to increasing
11 bureaucracy and the formation of any aquifer
12 management agency or water compact. As
13 suggested creating yet another agency,
14 management board, or water compact merely
15 further crowds an already overcrowded field
16 and makes effective action much more
17 difficult. This duplication of government
18 services by the creation of any added
19 bureaucracy will not streamline our actions,
20 but it would rather slow action by putting
21 an additional hurdle in place for public
22 suppliers without validation. Furthermore,
23 it creates yet another agency that will
24 likely muffle the voice of those who are
25 closest to water management and to those

1 with the day-in and day-out experience and
2 the expertise moving further from the
3 ultimate goal. Since New York State DEC is
4 empowered with managing and regulating Long
5 Island's water, we believe that it is
6 imperative that proper professional staffing
7 be restored and additional staff added so
8 that the DEC can properly fulfill their
9 mission. I thank you for the opportunity to
10 share our opinions.

11 MR. KOCH: Thank you, Mr. Schweizer.
12 Mr. John Waltz, associate partner, Sidney B.
13 Bowne.

14 MR. WALTZ: Thank you, Mr. Chairman.
15 I'm John Waltz, professional engineer. For
16 the last sixteen years, I've been an
17 associate partner with Sidney B. Bowne, an
18 engineering company that has worked with
19 many of the Long Island suppliers. For
20 thirty years prior to that, I was an
21 employee of Nassau County Department of
22 Public Works, the last eight years, the
23 Commissioner of Public Works. Needless to
24 say, I have a deep interest in clean water,
25 not just to drink, but I enjoy clean surface

1 water for kayaking, swimming, and fishing.
2 But enough about me. I'd like to
3 congratulate LICAP for its vision and broad
4 scope outlined in the State of the Aquifer
5 Report. For years, the idea of sharing and
6 combining data across Long Island and from
7 the federal to local levels has been talked
8 about, but now LICAP is doing just that. I
9 am particularly excited about the water
10 quality mapping, the WaterTraQ database.
11 The web based GIS display and query
12 capability of the raw water quality issue
13 stressed from all the water supply wells in
14 Nassau and Suffolk County is already a very
15 powerful tool. When the data from the
16 hundreds of USGS monitoring wells and county
17 monitoring wells for all three major
18 aquifers is updated and added it will be
19 that much more powerful. If the data from
20 the special plume monitoring wells are also
21 added, you'll have created an extraordinary
22 tool that will enable water professionals to
23 make informed decisions on where to site new
24 wells, when to pump existing wells, and
25 remediation options for contamination

1 plumes. But to do this effectively, data
2 must be current, and this requires a
3 tremendous effort and an across the board
4 commitment which translates into adequate
5 steady funding stream. With the composition
6 of LICAP, the USGS scientists, the DEC and
7 county regulatory professionals, the water
8 suppliers who treat and deliver the water to
9 the consumer, and representation from both
10 county executives and both legislators, you
11 have everything necessary to identify the
12 funding levels needed, and then to create
13 the renewable funding source that required
14 to complete and sustain what's been started
15 in your report. In closing, I applaud LICAP
16 for its work and strongly urge the
17 commission to continue its work. Thank you
18 for the opportunity to speak to you.

19 MR. KOCH: Thank you for your comments,
20 Mr. Waltz. We have one more, Eric Swenton,
21 executive director, Hempstead Harbor
22 Protection Committee.

23 MR. SWENTON: Good evening. I'd first
24 like to thank you for holding this hearing
25 this evening. Water quality is obviously

1 important to all Long Islanders, we couldn't
2 live without it, and I'm here representing
3 the nine local governments that form the
4 land area around Hempstead Harbor. I also
5 happen to be on the board of the Nassau
6 County Soil and Water Conservation District,
7 which is also very involved in water quality
8 issues. I found the report to be very
9 readable, I like the length. It does a good
10 service. I think it set out to do what it
11 set out to do, but I did notice in the
12 presentation tonight there were several
13 graphics on the screen that I didn't see in
14 the report, and I'd just like to request
15 that if possible that they be included
16 because it seemed like some very useful
17 information. I know that the members of the
18 LICAP board are aware that the area on the
19 north shore of Nassau County is really in
20 the same situation as most of Suffolk County
21 being unsewered, but you wouldn't know that
22 from reading the report. It, just like news
23 reports, gives very short shrift of the
24 issue of the unsewered area in Nassau
25 County, and I think it deserves better focus

1 because that focus would help municipalities
2 obtain grant funding in the future to pursue
3 sewerage if and when that funding becomes
4 available. There are fifty villages and
5 hamlets on the north shore of Nassau County
6 that are either unsewered or partly
7 unsewered, and it does comprise about thirty
8 percent of the land area of Nassau County,
9 so I think it does deserve a little more
10 priority in the report. The -- lastly, I
11 would like to point out that monitoring of
12 surface water quality is important, and
13 because of budget cuts in Nassau County the
14 burden has really fallen on local
15 governments and local citizen scientists to
16 perform that monitoring. We've been doing
17 it in Hempstead Harbor for twenty-five
18 years, but we were just turned down this
19 year on our funding, so I'm not sure what
20 we're going to be able to do next year,
21 we're still evaluating that, but it's
22 important to know what's getting into the
23 surface water, and if there could be an
24 emphasis on finding funding to pursue
25 surface water monitoring, that would benefit

1 all of us in the long run. Thank you.

2 MR. KOCH: Thank you. Thank you for
3 those comments. We will try to incorporate
4 as much as we can.

5 I lied, we have one more, New York State
6 Assembly, Mr. Saladino.

7 MR. SALADINO: Good evening. For the
8 record, I'm New York State Assemblyman,
9 Joseph Saladino, ninth assembly district,
10 encompassing the south shore of both Nassau
11 and Suffolk Counties. I'd like to thank you
12 for this opportunity, it's only right to
13 thank the county executive of Nassau County
14 and county executive of Suffolk County as
15 well as our legislatures. Both have shown
16 tremendous commitment to our environment, to
17 protecting our water, our surface water, our
18 drinking water, and our environment as a
19 whole, and they have proven that over the
20 course of many years. I'm here to talk very
21 briefly about the Grumman Navy plume. We
22 got legislation passed with the help of my
23 colleagues, including Assemblywoman
24 Schimmel, who is here today, and has done a
25 wonderful job with me on the environmental

1 conservation committee. That legislation
2 called the DEC to create a report on the
3 most feasible options to hydraulically
4 contain and remediate the Grumman Navy
5 plume. The plume effects currently and in
6 the path of the plume effects two hundred
7 and fifty thousand people and has the
8 highest concentrations of TCE and PCE
9 anywhere in the nation in a sole source
10 aquifer. For comparison purposes, in Flint,
11 Michigan that contamination effects one
12 hundred thousand people. This, again, is
13 two hundred and fifty thousand residents.
14 Our report or the report that was created
15 through our legislation shows that, in fact,
16 hydraulic containment is feasible. It's
17 currently the choice that the DEC is forcing
18 Grumman to use on site. This remediation is
19 not something that we think we should do but
20 we absolutely must do. We have options in
21 place, the report has shown them, and I want
22 to make it clear to all of you and to the
23 environmental community, both municipal and
24 volunteer environmentalists, that there's a
25 misnomer that's come out from this report.

1 For reasons that this is not the appropriate
2 place to get into, the report would lead
3 some in the environmental community to
4 believe that there is an environmental
5 negative impact, and the phrase saltwater
6 intrusion has been used. An impact, if we
7 or when we hydraulically contain the plume.
8 Well, that's absolutely ridiculous, and the
9 science does not bear out that conclusion.
10 In fact, the water is currently contaminated
11 and is not potable, so removing that water
12 from the center part of the island far north
13 of the coastline would not create a problem
14 of environmental of saltwater intrusion, and
15 there have been studies that underscore that
16 fact. The next issue is that the water is
17 contaminated and has to be dealt with, and
18 the ideas that we put forth with hydraulic
19 containment include using it for
20 reintroduction into the aquifer system
21 through injection and through percolation as
22 well as green technology, such as irrigating
23 the greens of the Bethpage State Golf Course
24 with this treated water. We're looking at
25 approximately thirty-five years to get the

1 job done entirely with an initial cost of
2 seventy million dollars for construction and
3 upwards of three hundred million dollars
4 over thirty-five years for the maintenance
5 of the entire project, which is less than
6 the five hundred million dollars it would
7 cost for well head treatment on the wells
8 active in that region and those in its path.
9 So it's more environmentally sound, it has
10 less environmental impact because when we
11 stop the plume, we stop it from
12 contaminating uncontaminated waters, and the
13 point has been brought up, a very important
14 point, that we have a finite amount of water
15 on Long Island for our residents. We have a
16 growing need and we certainly don't want to
17 be contaminating and reducing our overall
18 volume of water that we have here. So
19 hydraulic containment is the best method,
20 it's also less expensive than the well head
21 treatment that the DEC is currently pushing
22 for throughout the region, more expensive,
23 and I also want to make sure -- we want to
24 make sure, those of us in the legislature
25 want to make sure that we're not foisting

1 the costs of this on the taxpayers. Water
2 district, include the Massapequa Water
3 District, Bethpage, South Farmingdale, the
4 water districts of the area have been very
5 active with this issue and realize the
6 environmental concerns and the financial
7 impacts. So I ask you to get on board with
8 us, to continue to understand, some of you
9 already have been, I've worked with Stan
10 Carey for quite some time on this issue, but
11 it is important to make this a cornerstone
12 project, a shovel ready project for our
13 region to hydraulically contain this plume,
14 stop its migration, clean up the aquifer,
15 and also look for ways to utilize green
16 technologies with the treated water. This
17 is a very environmentally sound project and
18 quite frankly I am disappointed in the DEC
19 for foisting the idea that this would have
20 an environmental toll. That's just not the
21 case, and the facts bear that out. I thank
22 you for your patience, I thank you for your
23 time, and I'd like to again thank my
24 wonderful environmentally conscious
25 colleague, Michelle Schimmel, who has

1 consistently worked with us to protect our
2 environment throughout Long Island and
3 throughout our region, and I'd like to thank
4 the water districts and the private firms
5 who have brought their expertise, realize
6 the problem, have pushed for the treatments
7 and the solution and are watching out for
8 the taxpayers in the process. Thank you for
9 your time and attention to this matter.

10 MR. KOCH: Thank you, Assemblyman
11 Saladino. We feel like we have a big
12 brother in the corner right now. Anybody
13 else got some gumption now and want to come
14 up? Please state your name and if you're
15 affiliated with anybody. If you're a
16 resident, that's also great.

17 MS. BORECKY: Claudia Borecky, director
18 of Long Island Clean Air Water and Soil, and
19 I didn't come here on the intention on
20 speaking, but I am concerned especially what
21 Assemblywoman Schimmel was saying about that
22 nobody is really monitoring these economic
23 -- these projects, the development projects
24 that are coming in. I know Nassau County,
25 the USGS had stopped monitoring it for four

1 years because they couldn't decide who was
2 going to pay for it, and during that time a
3 project such as Eye Star in Long Beach put
4 in for an environmental study, but there was
5 no data available to say how the Lloyd
6 aquifer, the conditions of the Lloyd
7 aquifer. So then the study was done and the
8 Lloyd aquifer showed that its been
9 over-pumped, dangerously over-pumped, and
10 here you are bringing in a project that's
11 going to take a lot more water out of the
12 system, and there's nothing here with any
13 kind of teeth that can say to them, no, you
14 can't do this, it's, you know, it's -- this
15 is after they had done this study, so there
16 was no data, now that there is data, there's
17 nothing stopping it, and they keep on
18 building and building and building. They're
19 right, there's a finite amount of water, and
20 especially in the Lloyd aquifer where it's,
21 you know, it's very pure and it's -- if they
22 lose that, if there's saltwater intrusion to
23 that, they have no water. There's no other
24 choice. So I don't know what you can do,
25 but I would love to see this body have more

1 teeth and be able to not only protect us but
2 to really protect us you need to prevent
3 tragedies like that from happening.

4 MR. KOCH: Thank you, Ms. Borecky.
5 Anybody else? I make a motion to close the
6 hearings.

7 MR. SCHNEIDER: Second.

8 MR. KOCH: I heard a second. Hearings
9 closed.

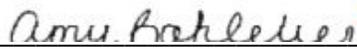
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11 (Time noted: 7:08 p.m.)
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C E R T I F I C A T E

I, AMY BOHLEBER, hereby certify that the within
Proceeding was held before me on the 17th day of
OCTOBER, 2016.

IN WITNESS WHEREOF, I have hereunto set my hand
this 17th day of October, 2016.




AMY BOHLEBER