

Appendix F-14
Carolyn Zenk, Esq. Letter

March 27, 2017 (Second)

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Southampton Town Board c/o Southampton Town Clerk
Southampton Town Hall
116 Hampton Road
Southampton, New York 11968

March 27th, 2017

Re: *Hills at Southampton PDD*; Dr. Arthur Goldberg, PhD's Pesticide Report

Dear Esteemed Members of the Southampton Town Board,

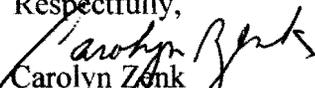
Dr. Arthur Goldberg informs me that his attached report, entitled a "*Pesticide Analysis of the Draft Environmental Impact Statement Submitted by Discovery Land Company for The Hills at Southampton Change of Zone Proposal from Five Acre Zone and Aquifer Protection Overlay District to Planned Development District (PDD) and Recommendations*" has been submitted to the Town Board's record. Given the document's vital importance, Dr. Goldberg has authorized me to submit another copy to ensure that Town Board members receive it. Accordingly, a second copy is attached.

Dr. Goldberg possesses a PhD in Organic Chemistry. He was a Professor of Chemistry and Environmental Science at Long Island University for thirty years where he taught Chemistry and Environmental Science. He has been working at the Department of Pharmacology at the Mount Sinai School of Medicine in New York City. After reviewing the list of pesticides in the Draft Environmental Impact Statement proposed for use on "The Hills at Southampton" he concludes:

SUMMARY: THE CHANGE OF ZONE TO PDD IS LIKELY TO ENDANGER THE PUBLIC'S HEALTH, DRINKING WATER SUPPLIES, AND MARINE ECOSYSTEMS DUE TO THE PROPOSED USE OF TOXIC PESTICIDES. CONTAMINATION OF THE AQUIFER IS LIKELY AND WITHOUT REMEDY. APPROVAL OF THIS CHANGE OF ZONE IS SERIOUSLY ILL-ADVISED.

Citizens for Clean Drinking Water, Clean Air, and Clean Bays strongly recommends against this change of zone as it represents a serious threat to the public's health.

Respectfully,


Carolyn Zenk
Attorney at Law

Enclosure Goldberg's February 8th, 2017 Pesticide Report

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RECEIVED



**PESTICIDE ANALYSIS OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT
SUBMITTED BY DISCOVERY LAND COMPANY FOR "THE HILLS AT
SOUTHAMPTON" CHANGE OF ZONE PROPOSAL FROM FIVE ACRE ZONE AND
AQUIFER PROTECTION OVERLAY DISTRICT TO PLANNED DEVELOPMENT
DISTRICT (PDD) AND RECOMMENDATIONS¹**

**BY DR. ARTHUR GOLDBERG, PhD in ORGANIC CHEMISTRY AND PROFESSOR OF
CHEMISTRY AND ENVIRONMENTAL SCIENCE, LONG ISLAND UNIVERSITY FOR
THIRTY YEARS.**

February 8th, 2017

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F-14.1
Sec. 4.6.2

**ANALYSIS AND RECOMMENDATIONS FOR THE DISCOVERY COMPANY'S HILLS
PROPOSAL**

Section 1: A list of pesticides appears in Table 1 of the DEIS (Draft Environmental Impact Statement). Examination of this list shows 42 pesticides proposed for use. Current zoning does not allow a golf course. **See Attached as Exhibit A. Table I, page 13 of 20. Exhibit K. Groundwater Monitoring Protocols from Developer's Draft Environmental Impact Statement.** The Discovery Land Company plans to use these pesticides on their proposed Golf Course in their Hills at Southampton Proposal. It should be noted that **(1) only the names of the 42 pesticides are listed.**

No chemical structures (2) are presented for the 42 pesticides in the Hills Proposal. Examination of the chemical structures gives critical information, which helps predict both the physical and chemical properties and also the toxic properties of each pesticide.

THE HAZARDOUS PROPERTIES OF THESE 42 PESTICIDES ARE NOT LISTED IN THE DEIS AND THUS THE "HARD LOOK" OR THOROUGH ANALYSIS REQUIRED BY THE

¹ Please note that inadequate time was given to me by the Town Board at the hearings for the DEIS to present critical expert testimony on "The Hills at Southampton" because my testimony time was limited to three minutes. In contrast, the Discovery Land Company was given nearly an hour for their experts to present their case.

STATE ENVIRONMENTAL QUALITY REVIEW ACT HAS NOT BEEN TAKEN.

Critical properties and impacts are missing from the available data presented for the pesticides, especially solubility in water, affinity of pesticides to accumulate in the fatty tissues of animals and humans and most importantly toxicity data. The physical and chemical properties of a pesticide may also be predicted by comparing it to a pesticide from the same chemical group, in which significant data has been collected.

Example: 1

This involves comparison of data from pesticides belonging to the same family. Pesticides containing an organophosphate group in their chemical structure all belong to the Organophosphate chemical family. These compounds are included in the list of pesticides to be used.

These compounds are very toxic, especially during the application process. People should be warned in advance that pesticide will be sprayed because their health could be seriously impaired.

Example: 2

Pesticides that contain chlorine atoms in their chemical structure belong to the Organochlorine chemical family. These pesticides all contain one or more chlorine atoms in the chemical structure. These are included in the pesticides proposed for use.

The physical, chemical and hazardous properties of the Organophosphates differ significantly from each other. The chlorinated pesticides affect non-target organisms, which can harm the organisms exposed. They are also very persistent in the environment and tend to bio accumulate in organisms. Examples are DDT and Polychlorinated biphenyls.

Two pesticides listed in Table 1 of the DEIS are Cholorthalonil and Chlorpyrifos and both contain chlorine atoms.

Will these 2 chlorinated pesticides have the same or different general properties as shown above for the Organochlorine pesticides? Their properties will usually be similar, but in

some cases their properties will be different. This is also true with toxicity of pesticides.

Knowledge of the properties of the pesticides to be used is one important criteria to consider in making a decision about the Hills proposal. The knowledge necessary to make a decision has not been provided.

All relevant data on the 42 pesticides considered for use in the golf course should have been included in the DEIS. This was not the case. The information is radically incomplete.

Section 2: Why are Pesticides a Problem?

Section 2A: Pesticides are basically designed and manufactured to kill living organisms. Many Pesticides (1) however are also **toxic to non-target organisms** such as plants, butterflies, animals and also (2) humans, which harms ecosystems.

Section 2B: Pesticides also have (3) profound **affects on Aquatic Ecosystems**. If a pesticide affects one or more of the organisms involved in the food chain of an aquatic ecosystem, the entire ecosystem will dramatically be affected. This is of great concern for this East Quogue proposal because pesticides will be released in close proximity to Weesuck Creek, which directly drains into Shinnecock Bay, which is already severely compromised by Brown Tide blooms and Red Tide blooms.

Section 2C: Bioaccumulation of Pesticides

Another important mechanism of some pesticides is bioaccumulation where aquatic organisms uptake the pesticides from the sediments and water and may therefore acquire tissue levels much greater than those in the environment. This is of concern because Shinnecock Bay contains shellfish and shellfish, which are likely to be consumed by humans.

The chemical structures of some pesticides will enable us to predict that they are likely to bio accumulate in specific food chains.

The chlorinated pesticides are well known for their ability to bio accumulate in the food chains from very low to very high concentrations. Examples include: DDT, PCB's, Dioxins. These

substances are currently proposed for The Hills at Southampton, thus bioaccumulation is of great concern.

Section 3: What Dangers do Pesticides Pose to Humans?

There are many ways in which one could be exposed to toxic pesticides. This can happen by drinking pesticide contaminated water, swimming in pesticide contaminate water, through food containing pesticides being in contact with vapor in the air, and also by playing golf on a pesticide treated golf course!

If you can smell a pesticide you are inhaling that pesticide. This type of exposure is usually the most dangerous because the pesticide can get into your respiratory track.

Section 3A: Organophosphates Pesticides

The Organophosphate pesticides are also proposed for "The Hills" golf course. They are **highly toxic to humans**, especially when applying these pesticides to large areas. Special equipment and clothing are required during application of this pesticide. These highly toxic substances should not be used near the East Quogue Elementary School, the East Quogue downtown area, or populated areas. The proposal is several blocks from all of these areas.

Individuals living in the proposed Hills Development or in a nearby area community should be alerted to the use of these substances so that they have an opportunity to protest this PDD and avoid exposure to these pesticides. The **organophosphate pesticides are related to the nerve gases used by the Nazis during World War II.** Both are made from **phosphoric acid and both are in the same chemical family**

Section 3B: Organochlorine Pesticides

Pesticides that contain chlorine atoms in their chemical structure are highly bioactive and very likely to affect Non harmful-Target Species. These are also proposed for use at "The Hills" and present serious problems.

The DDT pesticides are in the Organochlorine chemical family. They are the most powerful pesticides the world has ever known and have been documented to kill 100's of different kinds of insects, which is likely to harm nearby ecosystems.

They have been **investigated for decades. Scientific studies consistently reveal new toxic effects to humans and ecosystems.**

Section: 3C: Pesticides Acting as Endocrine Disruptors

The pesticides acting as Endocrine Disruptors are also proposed for use in "The Hills" PDD. Their impacts are not yet very well known, but some of them have been researched extensively. An endocrine disruptor disturbs the hormone activity in humans, often with dire results.

Table 2 shows the variety of pesticides that have endocrine disruptive activity. About 105 substances can be listed, and most of them are shown in Table 2. Of these, 46% are insecticides, 21% herbicides and 31% fungicides; some of them were withdrawn from general use many years ago but are still found in the environment due to their long-standing effects. (ex. DDT and atrazine in several countries).

Endocrine Disruption by pesticides has been documented to occur at concentrations significantly above published safe published limits" for known detrimental effects to humans.

Medical problems caused by these pesticides (1) are difficult to diagnose and cure. It is also difficult to determine the cause and treatment of many of the more severe medical conditions. Many of these pesticides have not yet been shown to act as Endocrine Disruptors.

This is due in part to the very **low concentrations these compounds are capable of inducing harmful reactions to humans.**

Secondly, there is no easy way to test for the presence of these Endocrine Disrupting Pesticides since there are so many different chemical structures involved.

Are pesticides with Endocrine Disruption activity among the 42 pesticides considered for use on the propose golf course? Having just placed Table 2 in the Addendum of this report, I decided to take a short look in table 1. I was amazed to find **Iprodione listed as an endocrine disruptor.**

Its name and chemical structure was listed on p. 2279 in the

Int. J. Environ. Res. Public Health **2011**,**8**. It was one of the 42 pesticides considered for use on the proposed golf course.

A simple literature search should have found this long and extremely important list of Endocrine Disruptors!

Section 4: What happens to pesticides after entering the soil and the ground water?

(1) Chemicals and pesticides are carried by the ground water down gradient flow to the nearest "sink" In this case Weesuck Creek and Western Peconic Bay.

(2) The pesticides of greatest concern are (2) those that are persistent in the environment

Once entering the soil and ground water,(3), some pesticides may have a long residence time due to the stability of their chemical structure. (4) Other pesticides breakdown into smaller fragments, usually in the presence of water and/or sunlight. This again is due to their chemical structure.

Research on these smaller fragments has shown that **some of these fragments are toxic.**

Section 5

SUMMMARY

Information on pesticides is not static, since new findings on the physical and chemical and toxic properties are always being updated and published. Therefore, some of the pesticides, which are arguably considered safe in Table I, may be found to be unsafe at a later date.

Much of this information involves new reports on the toxic effects of pesticides on **non-target species**. New reports also include findings of **toxic metabolites formed by the breakdown of pesticides in the environment**. **Therefore, even if some of the pesticides may be considered safe, later reports may find out that their metabolites are not safe.**

A number of water pollution and **health problems** have also been associated with the **manufacture** of Organochlorine pesticides. Small quantities of side products that form are sometimes toxic. The "Hills" Project has some serious and potential major problems. These are

problems (1) concerning localized pesticide exposure issues and (2) drinking water contamination of the sole source aquifer and surface water contamination.

The closeness of the proposed Hills Golf Course to the Pine Barrens poses major problems of contamination by pesticides in the Upper Glacier aquifer.

This aquifer is by far the major source of pure water for Eastern Long Island, Suffolk Country and Long Island. The Pine Barrens acts as both a water storage area and water recharge area for the aquifer below.

The closeness of the proposed golf course to the Pine Barrens recharge area greatly increases the probability for pesticide contamination.

Residents living within the proposed Hills project area are likely to be exposed to pesticides over a long period of time. Managing the 42 pesticides proposed for use, even with the record keeping described in the DEIS, is still highly likely to cause accidents and water contamination.

Contamination by pesticides of the Upper Glacial aquifer will constitute a major disaster

The increase in extreme weather conditions due to global climate change predicts more intense rainstorms over a short period of time over Long Island. The consequences are increases in flooding. Under these conditions, pesticides and pesticide residues will be more likely to enter and contaminate the water in the Pine Barrens.

Once pesticides start leeching into the Upper Pine Barrens aquifer, very little can be done in terms of remediation. We are looking at relatively small quantities of pesticides contaminating very large volumes of water. Some of these pesticides may be capable of bioaccumulation; some may act as Endocrine Disruptors, which been documented to be toxic at extremely low concentrations.

Pesticides such as the chlorinated pesticides have a density greater than one, which makes them very heavy. These pesticides will sink to the bottom of the aquifer and remediation will be improbable, if not impossible.

Unlike the removal and monitoring of nitrogen and phosphorus from water, in which a number of different advanced treatment processes



could be employed, this is not the case with pesticides. Pesticides have different chemical structures. Consequently a literature search of remediation schemes for (1) individual pesticides as well as (2) groups of pesticides did not yield any information. In short, these are environmental impacts, which cannot be avoided. Why should the Town Board allow a change of zone, which allows a toxic golf course use, where none was allowed before and risk the public's health?

There is no single treatment process, which exists for the removal of all pesticides.

Discovery Land Company has not taken a "hard look" at the following "areas of environmental concern" as required by law. For this reason alone, the PDD project should be rejected.

These questions include:

(1) Does the Discovery Company have a remediation plan for removal of pesticides contaminating the water of the glacial aquifer of the Pine Barrens? *(I have already noted that literature searches reveal that once the aquifer is contaminated, no remediation is possible)*

(2) Does the Discovery Company have a plan for an alternate source of water if pesticides should contaminate the Pine Barrens aquifer?

(3) Who will cover medical expenses directly related to groundwater contamination or surface water contamination should it occur? Has a bond or insurance been required by the Town Board for this purpose?

A literature search for the Presence of Hazardous Pesticides among the 42 pesticides listed and recommended for use by the Discovery Company resulted in the results contained in Table 2 below.

Ten pesticides are listed in Table 2. These pesticides are also listed in Table 1 in The Hills DEIS

The Hazardous data for these pesticides comes from the **PAN (Pesticide Action Network) INTERNATIONAL List of HIGHLY HAZARDOUS PESTICIDES (2011).**

This List of Highly Hazardous Pesticides in Table 2 can be found in the Addendum of this report. It is a very large and intricate list.

These 10 highly toxic pesticides are also recommended for use on the Discovery Company, proposed golf course.

Ten pesticides are listed as *Highly Toxic* from the PAN International list of Highly Hazardous Pesticides.

Four of these pesticides are listed as “ Highly Toxic to Aquatic Organisms.”

Three of these pesticides are listed as Carcinogens.

Table 2. Lists Pesticides Considered for Use on Hills Proposed Golf Course Having Documented Toxic Properties:

- 1 Bifenthrin
- 2 Chlorprifos
- 3 Fenarimol
- 4 Deltamethrin
- 5 Iprodione
- 6 Imidacyloprid
- 7 Lambda Cyhalothrin
- 8 Mancozed
- 9 Spinosad
- 10 Thiophanate - methyl

Section 6: CONCLUSIONS

Ten pesticides documented as highly toxic are among the 42 pesticides considered for use on the proposed golf course.

The Town Board should not gamble that the Pine Barrens will not become contaminated with pesticides when the current zoning does not allow a golf course, which would use these toxins. Such a change of zone would be a disservice to the people who will be living at the proposed Hills Development, the people in Suffolk County and all of Long Island.

I note that the Attorney General of the State of New York has warned against use of highly toxic pesticides over Long Island's sole source aquifer and has noted that pesticides can travel aerially far from their point of application.

My background in pharmacology therefore tells me people living in this proposed development could very well develop unwanted health problems due to long term exposure to pesticides in their drinking water, their air, and any finfish or shellfish, which bio accumulate these toxins in their tissues.

From the information in my report, my conclusion is that both Pesticide Safety and Water Contamination have a very high Risk Assessment Value. In view of the above **I STRONGLY ADVISE MEMBERS OF THE SOUTHAMPTON TOWN BOARD TO VOTE AGAINST THE HILLS AT SOUTHAMPTON PDD PROPOSAL. My credentials follow.**

Respectfully Submitted,

Handwritten signature of Arthur Goldberg, consisting of the letters 'A' and 'G' in a stylized, cursive font.

Dr. Arthur Goldberg, PhD Organic Chemistry

Enviromeasurements LLC

[Credentials Attached]

CREDENTIALS OF DR. ARTHUR GOLDBERG

Section 7: Relevant Information about Author, Arthur Goldberg

Year round resident of the town of Southampton
PhD in Organic Chemistry
Department of Pharmacology, Mount Sinai School of Medicine,
NYC.
Thirty years teaching experience in Chemistry and
Environmental Science
Professor of Chemistry and Environmental Science in Long
Island University (L.I. U)
Retired Dec. 30, 2012 from the C.W. Post Campus of L.I.U.
Presently, Professor Emeritus of Chemistry and Environmental
Science at L.I.U.
Enviromeasurements LLC Consulting Firm with Larry Penny
Conscience Point Shellfish Hatchery: (BOD)----A Non-Profit
Company focusing on aquaculture of shellfish

Section 8: Academic Information Relevant to the Hills Proposal

Taught the following courses: advanced "Environmental
Chemistry". Topics included (1) chemistry and toxicology of
pesticides, (2) the impact of pesticides on the aquatic
environment and (3) water pollution and water treatment.

"Organic Chemistry" (one- year course) covering (1) chemical
reactions in the aquatic environment, (2) mechanisms for the
formation and break down of organic molecules (including
pesticides).

Section: 9 ADDENDUM

PAN International list of Highly Hazardous Pesticides, June 2014
(Toxicity Data)

List of Chemical Structures and Names of pesticides, which are
known Endocrine Disruptors from Journal Intl. Environ. Res. Public
Health **2011**, (p.2279)

Table 1
Pesticides Considered for Use

Chlorothalonil	Fostyl-Al	Paclobutrizol
Propamocarb	Triexapac-Ethyl	Prodiamine
Metaconazole	Boscalid	Penoxsulam
Iprodione	Carefentrazone-Ethyl	Trifloxystrobin
Pendimethalin	Mancozeb	Mefanoxam
Etridiazole	Flutolanil	Deltamethrin
Ethofumesate	Fenarimol	Myclobutanil
Mesotrione	Bispybac-Sodium	Bifenthrin
Polyoxin	Propoconazole	Spinosad
Azoxystrobin	Thiophanate-methyl	Aluminum tris O-ethyl
Imidacloprid	Thiabendazole	Imidacloprid
Quinclorac	Azoxystrobin	Lambda-cyhalothrin
Carbaryl	Chlorpyrifos	Acibenzolar
Triadimefon + Tridimenol Metabolite	Fluazinam	Penthiopyrad