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September 8, 2017

**Via Registered Mail Return Receipt Requested**

President Donald Trump  
The White House  
1600 Pennsylvania Avenue NW  
Washington, DC 20500

Richard V. Spencer, Secretary of the Navy  
Office of the Secretary of the Navy  
1000 Navy Pentagon  
Washington, DC 20350

The Honorable Andrew M. Cuomo, Governor  
of the State of New York  
The State of New York  
New York State Capitol Building  
Albany, NY 12224

Commissioner Basil Seggos  
New York State Department of Environmental  
Conservation  
625 Broadway  
Albany, NY 12233-1011

**Re: Notice of Intent to Sue Pursuant to 42 U.S.C. § 6972 and 42 U.S.C. § 9659**

Dear Sirs:

This firm is counsel to Long Island Pure Water Ltd. (the “Citizens”). The Citizens hereby notify the United States of America and the United States Department of the Navy (together, the “Navy”), as well as, the State of New York and the New York State Department of Environmental Conservation (together, the “NYSDEC”) of the Citizens’ intent to sue under: (i) 42 U.S.C. § 9659(a)(1) for violations of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), and (ii) 42 U.S.C. § 6972(a)(1)(B) for causing an imminent and substantial endangerment to health and the environment in Long Island’s sole source aquifer and the drinking water supply of Bethpage, South Farmingdale, Massapequa and surrounding communities. In this action, the Citizens will seek injunctive relief for the investigation, feasibility study and remediation of radionuclide and associated subsurface contamination emanating from the Bethpage Facilities (as defined below). The specific contaminants of concern for purposes of this suit are listed in Exhibit A and Exhibit B.

*Executive Summary*

For over thirty (30) years, the groundwater plume of toxic contaminants has been permitted to spread and migrate under the direction and control of the NYSDEC and the Navy. The plume is severely contaminating Long Island’s sole source aquifer and has expanded greatly to what is now reported to be three (3) miles long by two (2) miles wide and continues to grow. This plume impacts the drinking water supply, and potentially indoor air, which places citizens at risk of exposure to toxic contaminants, including the recently discovered **radioactive material existing in the plume.**

The plume formed during the Navy's multi-decade operations in Bethpage commencing in the 1940s. For several years, the Navy and the NYSDEC have known radium was detected in the plume. Radium is a radioactive chemical and carcinogen which decays to radon, a radioactive gas and again, a known carcinogen. Notwithstanding the known radioactivity in the groundwater and potential radioactivity in the air, the NYSDEC and the Navy have failed to conduct the necessary investigation or begin to rectify the problem.

Even more troubling, evidence suggests that the NYSDEC and the Navy knew of the spreading radioactive contamination and have not released sampling results to the public. The NYSDEC and the Navy have failed to acknowledge the presence of radioactive materials in the plume in public reports mandated by Congress and the New York State Legislature. This letter emphasizes the extreme government delays and remedial party inaction, lack of cooperation and complete disregard for the duty to protect the public and the environment from further harm. Public intervention is necessary to ensure a formal investigation and adequate remediation is completed without delay.

This letter will serve as notice of Long Island Pure Water Ltd.'s intent to commence a citizen's suit to remediate the imminent and substantial endangerment to health and the environment caused by the gross and egregious failures of the NYSDEC and the Navy. Long Island Pure Water Ltd. will request, among other things, that a formal remedial investigation and feasibility study be conducted and the remediation of the radioactive materials and other contaminants be completed in a timely manner. Due to the persistent and collective failures of the NYSDEC and the Navy, Long Island Pure Water Ltd. will demand that the citizens be at the forefront of the investigation and remediation processes. At the end of the respective notice periods, Long Island Pure Water Ltd. will commence a legal action on behalf of those citizens affected by the egregious violations of RCRA and CERCLA.

## **I. Background**

Bethpage is located in the Town of Oyster Bay in Nassau County, New York. Beginning in the early 1940's, Northrop Grumman, formerly Grumman Aerospace Corporation and Grumman Aircraft Engineering Corporation ("Grumman") and the Navy occupied approximately 600 acres in Bethpage (the "Bethpage Facilities"). The Naval Weapons Industrial Reserve Plant ("NWIRP") was a government owned-contractor operated facility consisting of 105 of the 600 acres. The remaining 500 acres were owned by Grumman (the "Grumman Site"). Operations at the Bethpage Facilities included research, prototyping, testing, design engineering, fabrication and primary assembly of military aircraft. In addition to manufacturing operations, the Bethpage Facilities also had an active airfield. Today, the Bethpage Facilities consist of industrial and commercial properties surrounded by residential communities.

During the many decades of operations at the Bethpage Facilities, chemical materials were used, spilled, leaked, and/or otherwise discarded into the surrounding environment, including the soil and groundwater. This widespread contamination resulted in a massive groundwater plume of pollutants in the Bethpage area emanating from the Bethpage Facilities. The Bethpage Facilities were first listed as a Superfund site in 1983 (Site No.130003). In 1993,

the site was divided into the Grumman Sites (#130003A and #130003C) and the 105 acre Navy site, known as NWIRP (#130003B). The sites are currently Class 2 state Superfund sites, meaning “the disposal of hazardous waste has been confirmed and the presence of such hazardous waste or its components or breakdown products represents a significant threat to public health or the environment.” N.Y. Env'tl. Conserv. Law § 27-1305(b)(2).

The plume of contaminants travels with the groundwater to the south-southeast and is now reported to be approximately three (3) miles long, two (2) miles wide and hundreds of feet deep. As the groundwater moves, the plume spreads and migrates into deeper portions of the aquifer. The plume has impacted or is expected to impact the water supply of Bethpage, South Farmingdale, Massapequa and other surrounding communities. There are numerous public and private supply wells located to the south of the Bethpage Facilities that supply drinking water to tens of thousands of people. All water supplies are drawn from the Nassau-Suffolk aquifer system, which the United States Environmental Protection Agency designated a sole-source aquifer in 1975.

Past and present failures, inefficiencies and bureaucratic delays in implementing adequate investigations and cleanup plans have allowed the plume of toxic contaminants to continuously grow and migrate through the environment. Despite the NYSDEC and the Navy having knowledge of significant contamination for over thirty (30) years, the plume has not even been contained, let alone remediated. More egregious, neither NYSDEC nor the Navy has conducted an investigation of radioactive material in the plume despite having knowledge that such radioactive material exists therein.

## **II. The Presence of Radionuclides Emanating From the Bethpage Facilities**

Radium is a radioactive metal that exists in 34 known isotopes. All isotopes of radium are radioactive. Two of the most hazardous radium isotopes found in the environment are radium-226 and radium-228. Radium-226 has a half life of 1600 years and radium-228 has a half life of 5.75 years. The state and federal maximum contaminant level (“MCL”) for combined radium-226 and radium-228 (“Radium”) is 5 picocuries per liter (pCi/L). According to a fact sheet issued by the United States Environmental Protection Agency, exposure to radium can result in an increased incidence of bone cancer, liver cancer, breast cancer, lymphoma, and hematopoietic diseases (e.g. leukemia and aplastic anemia).

In May 2013, the local water district shut down a supply well due to the detection of elevated levels of radium. In June 2017, Bethpage School District reported the results of its own sampling of radioactive materials at Bethpage High School, which is approximately one-half (½) mile away from the Bethpage Facilities. Three groundwater monitoring wells on school property were analyzed for contaminants and each detected radium levels far exceeding the MCL. The combined radium results showing exceedances of the MCL are included in Table 1.<sup>1</sup> Further, the school district detected levels of radon gas (a direct decay product of radium-226) in the indoor air of the school which were just slightly below the federal hazard threshold but substantially higher than typical levels for Long Island.

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<sup>1</sup> Table 1 is a listing of sampling results evidencing radium exceedances in the Bethpage area.

In addition, by 2016 (approximately, thirty years after the plume was discovered) the NYSDEC and the Navy conducted limited sampling of the Bethpage area that revealed at least six wells with radium concentrations exceeding the MCL. When studied in the aggregate, **the results reveal that a plume of radioactive material exists.** See Table 1; Map 1. Incredibly, these sampling results were not fully and timely revealed to the public. Reports from Grumman, the Navy, and third parties suggest the radioactive material detected in the plume emanates from the Bethpage Facilities.

#### **A. Northrop Grumman's Report Verified Use of Radioactive Materials at the Bethpage Facilities**

In 2013 and again in 2016, the NYSDEC requested that Grumman disclose information regarding Grumman's use and disposal of radioactive materials during its operations. In September 2016, Grumman finally responded to the request by letter (the "Grumman September 2016 Letter"). In that letter, Grumman, without releasing pertinent records, admits to the extensive use of radioactive materials at the Bethpage Facilities during its period of operations. Specifically, Grumman refers to files containing information relating to:

[L]icenses from the NYS Department of Labor and related correspondence; specific quality-control and research projects using radionuclides; inventories of radionuclides; manifests and disposal permits for radionuclides; equipment containing radionuclides; decommissioning of facilities that contained radionuclides; routine monitoring of employees for exposure to radiation; luminescent aircraft/spacecraft components; reference materials explaining company or government rules for handling and/or disposal of radionuclides; routine employee exposure monitoring records; records containing optical radiation; and records regarding radiation-related equipment containing no facial reference to radionuclides.

Grumman September 2016 Letter.<sup>2</sup>

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<sup>2</sup> In connection with the Grumman September 2016 Letter, Grumman retained its own expert to opine on the source of the subsurface radionuclide contamination. Grumman's expert, while simultaneously admitting he did not conduct a full "cradle to grave" review, incredibly concluded that there is no reason to believe Grumman's activities at the site are the source of the radium detected in the groundwater in the area. The expert's findings have little, if any, probative value for the following reasons:

- In the Grumman September 2016 Letter, Grumman concedes that its records only date back to the early 1960's. Grumman's operations, however, began in Bethpage around 1940, leaving nearly twenty (20) years of unrecorded operations. The expert himself concedes that he did not conduct a full "cradle to grave" review and it appears Grumman only provided certain records of its existing pertinent records to the expert.

## **B. The Activities at Plant 26 and Building 10 Further Confirm the Use of Radioactive Materials at the Bethpage Facilities**

A Phase I Environmental Site Assessment on Plant 26, one of the buildings located within the Bethpage Facilities, was prepared in 2000 by Arcadis Geraghty & Miller (the “2000 Arcadis Phase I”). Appendix F of the 2000 Arcadis Phase I contains a letter from Grumman to the NYS Department of Labor (“NYS DOL”) dated February 25, 1999. The letter states, “[s]ince **loose radioactive materials** are no longer being used anywhere in this building (nor anywhere else within our installation), the purpose of this decommissioning effort was to ensure that no residual radioactivity in excess of current guidelines exist in the building.” This statement is significant as it verifies that the use of radioactive materials at the Bethpage Facilities was not limited to sealed sources.

In addition, the 2000 Arcadis Phase I provides details as to the operations which occurred in Plant 26. From 1964 to the mid-1990’s the southern side of the building housed a Van de Graff ion generator and a Kaman neutron generator used for materials testing and research and development studies. A section of the building, also associated with the Kaman neutron generator, was formerly used for “radiation effects studies” in which various types of metals were tested with different types of radiation. The report identified a restricted partial basement area and one room of Plant 26 where the contents and uses of the room are reportedly classified. This room is referred to as a “black room” meaning only United States Department of Defense (“DOD”) personnel and those with high security clearance were granted access.

Several other critical documents obtained by the Citizens include three letters between Grumman and the NYSDOL regarding the decommissioning of Building 10 and the filling and capping of a Neutron Generator Pit at that building. The NYSDOL accepted the decommissioning report for Building 10 and approved the release of the building from radiological control in June 1998. However, NYSDOL’s expedited approval in no way implies that a thorough and appropriate subsurface investigation was performed with respect to the effect or impact of the radioactive materials used in Building 10.

## **III. Soil Vapor Intrusion**

A major concern with soil and groundwater contamination is the potential for the contaminants to evaporate into the air spaces within the soil and then move upwardly into

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- The expert was retained by Grumman, not the NYSDEC or an independent third party. The expert was not cross examined and no other independent expert reviewed Grumman’s records or opined on the expert’s conclusions.
  - The expert admits that two of Grumman’s Alnor detectors were “misplaced” in 1974, each reportedly containing a 6.25 microCurie radium-226 source (an amount higher than the MCL). The locations of these detectors remain unknown.
  - The expert’s conclusions strain credulity. As set forth above, Grumman admits radioactive materials were used at the site to, among other things, manufacture luminescent aircraft dials. This use, combined with the sampling results showing radium exceedances at locations that are south-easterly of the Bethpage Facilities, which is the precise direction of groundwater flow, demonstrate that the site is the likely source of the existing radionuclide contamination.

overlying buildings and affect indoor air quality. This process, called soil vapor intrusion, is particularly alarming in this case because as radium decays it creates the radioactive gas radon. According to a NYS Department of Health fact sheet, radon can also be dissolved in groundwater and be introduced into the indoor air through the aeration of well water during its use in washing machines, showers, and cooking. Radon is a colorless, tasteless and odorless gas that can only be measured through the use of proper test procedures. It is also a known carcinogen and is the second leading cause of lung cancer in the United States, resulting in an estimated 22,000 lung cancer deaths annually.

To date, neither the Navy nor the NYSDEC has conducted subslab or indoor air testing for radon at the Bethpage Facilities or throughout the surrounding residential areas. Only the Bethpage School District has conducted isolated radon sampling at Bethpage High School. While those results did not show exceedances of the United States Environmental Protection Agency's recommended action level of 4.0 pCi/L, the results did reveal substantially elevated indoor air levels as high as 3.8 pCi/L and 3.9 pCi/L. **These elevated levels are indicative of a radium source, as opposed to naturally occurring background levels of radon, which are typically low on Long Island.**

The elevated levels found at the school emphasize the need for a thorough investigation of the radionuclide contamination in the groundwater, soil and soil gas. Until such contamination is remediated, the citizens are at risk of exposure through water and the air in their homes, schools and businesses.

#### **IV. NYSDEC's Failures**

The NYSDEC, as lead environmental agency in charge of overseeing plume management and remediation, has failed the public by not adequately investigating and remediating the plume. The NYSDEC's failures are gross and numerous.

##### **A. Thirty Years**

It has been over thirty (30) years since the Bethpage Facilities were first listed as a state Superfund site. Under NYSDEC oversight, the plume continues to spread and move with the groundwater. Today, the plume is reported to be three (3) miles long by two (2) miles wide, an environmental catastrophe that should have undoubtedly been prevented. NYSDEC's unsuccessful attempts at containing and remediating the plume has lead to a devastating impact to Long Island's sole source aquifer and placed tens of thousands of citizens at risk of exposure to contaminated drinking water. This failure is unacceptable.

##### **B. Delisting of Portions of the Bethpage Facilities Without Adequate Investigation**

As the lead agency, the NYSDEC has authority to delist certain portions of a Superfund site once investigation of those areas is concluded. During the early 1990's, many portions of the Bethpage Facilities were delisted as investigations of the area were allegedly completed.

The NYSDEC approved the delisting of Plant 26 from the registry of Inactive Hazardous Waste Sites on June 1, 1995 without investigating for radionuclide contamination. This is troubling because at the time Plant 26 was delisted, Grumman was authorized by active license to use loose and sealed radioactive materials at Plant 26. In fact, Plant 26 was not released from radiological control until March 15, 1999, nearly four years *after* it was delisted. A review of the NYS Site Registry Delisting Petition by Grumman's consultant reveals that radioactive materials were not sampled prior to delisting Plant 26. **Thus, the NYSDEC permitted a building that served as a sanctuary for radioactive material to be delisted as a Superfund site without testing for radioactive materials.**

Today, the Grumman Site consists of only nine (9) acres from the original 500 and the NWIRP site consists of only 8.7 acres from the original 105. This drastic reduction in Superfund site acreage without the subsurface being adequately investigated leads the Citizens to question the integrity of each of NYSDEC's delisting decisions.

### C. The NYSDEC's Violations of New York State Superfund Statutes and Regulations

The NYSDEC's inaction with respect to the Bethpage Facilities has resulted in numerous violations of New York state environmental statutes and regulations. These violations have contributed to the imminent and substantial endangerment the Citizens are faced with today. Under the Environmental Conservation Law ("ECL"), the NYSDEC is obligated, based upon new information received, to reassess by March 31<sup>st</sup> of each year the relative need for action at each site to remedy the environmental and health problems resulting from the presence of hazardous wastes at such sites. See N.Y. Env'tl. Conserv. Law § 27-1305(b).

The NYSDEC has been in possession of the 2000 Arcadis Phase I which revealed the use of "loose radioactive materials" at the Bethpage Facilities. In addition, in 2013, radium was detected in the sole source aquifer and the Navy produced to the NYSDEC never-before-seen radioactive materials records. In 2016, the NYSDEC detected radium exceeding the MCL in several wells throughout the area and received Grumman's never-before-seen records confirming the use of radioactive materials at the Bethpage Facilities. Each of the foregoing facts constitutes "new information received" and should have triggered the NYSDEC's reassessment of its investigatory and remedial strategy. Yet, in each instance, the NYSDEC failed to reassess in accordance with ECL § 27-1305(b). The NYSDEC's failure to properly assess and evaluate, while allowing the plume to continue to spread, is grossly improper.<sup>3</sup>

Furthermore, with respect to a proper remedial investigation, the NYSDEC historically violated and continues to violate NYSDEC's own regulations. Pursuant to the NYSDEC's regulations at 6 N.Y.C.R.R. § 375-1.8(e),

- (1) The goals of the remedial investigation include, but are not limited, to the:

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<sup>3</sup> Citizens expect that discovery will reveal additional facts and information obtained by the NYSDEC over the thirty (30) year history of the plume that constitutes "new information received".

- (i) delineation of the aerial and vertical extent of the contamination at, and emanating from all media at the site and the nature of that contamination;
- (ii) characterization of the surface and subsurface characteristics of the site, including topography, surface drainage, stratigraphy, depth to groundwater, and any aquifers that have been impacted or have the potential to be impacted;
- (iii) identification of the sources of contamination, the migration pathways and actual or potential receptors of contaminants;
- (iv) evaluation of actual and potential threats to public health and the environment;
- (v) production of data of sufficient quantity and quality to support the necessity for, and the proposed extent of, remediation and to support the evaluation of proposed alternatives.

(2) Such investigation shall emphasize data collection, sampling and monitoring, as necessary, and includes but is not limited to:

- (i) characterization of site geologic and hydrogeologic conditions, including groundwater flow, contaminant movement, and the response of the groundwater system to extraction;
- (ii) assessment of the existing and potential impact of groundwater contamination on private or community water supply wells, surface water quality, air quality, and indoor air quality;
- (iii) sampling and analysis necessary to gather sufficient information to evaluate human and environmental exposure pathways, as well as, any actual or potential adverse effects due to site contamination; and
- (iv) delineation of the nature and extent of contamination sufficient to determine the necessity for, and the proposed extent of remediation, in order to support the development and evaluation of proposed alternatives in the remedy selection process.

6 N.Y.C.R.R. §§ 375-1.8(e)(1), (2).

The Citizens have thoroughly examined the NYSDEC's response to the detection of radium in their source of drinking water and have eagerly awaited the NYSDEC to take action in accordance with the law. To date, the NYSDEC's limited response actions in no way rise to the level that is required under the ECL and NYSDEC's own regulations. In fact, the lack of



response has only exacerbated the imminent and substantial endangerment to health and the environment.

#### **D. Selecting Wellhead Treatment as the Remedial Alternative in 2001 was Grossly Improper**

NYSDEC issued Records of Decision (“ROD”) for each Operable Unit (“OU”) of the Bethpage Superfund site. The 2001 OU2 ROD, which addresses onsite and offsite groundwater, selected a remedy focused on long term operation and maintenance of wellhead treatment systems combined with long term groundwater monitoring including monitored natural attenuation. There are several issues with the chosen remedies of this ROD.

First, the selected remedies were chosen based on information provided by the Navy and Grumman. As discussed herein, neither the Navy nor Grumman provided information regarding the use of radioactive materials prior to the NYSDEC’s issuance of the ROD. Consequently, the selected remedies, especially wellhead treatment, could not possibly treat radioactive materials effectively.

The wellhead treatment systems were designed to treat drinking water contaminated with only the specific contaminants known by the NYSDEC at that time. These contaminants, listed in Exhibit B, do not include radionuclides or other emerging contaminants. With new sampling results confirming radium in the sole source aquifer (see Table 1), and recently discovered radionuclides and emerging contaminants (see Exhibit A) in Long Island’s aquifer, the wellhead treatment systems currently in place are ineffective. This is demonstrated most notably by the fact that the local water district had to shut down a supply well in 2013 when radium was detected. Although a treatment system was installed, the system cannot successfully remove radium from the drinking water and, consequently, the well could no longer be used.

This decision also violated NYSDEC’s preferred source removal and control measures set forth in 6 N.Y.C.R.R. § 375-1.8(c). According to § 375-1.8(c), the NYSDEC shall first remove and treat contamination to the greatest extent feasible, achieve containment to the greatest extent feasible, eliminate exposure to the greatest extent feasible, and leaves wellhead treatment to “**be considered a measure of last resort.**” Additionally, as stated in 6 N.Y.C.R.R. § 375-1.8(a), “[a]t a minimum, the remedy selected shall eliminate or mitigate all significant threats to the public health and to the environment presented by contaminants disposed at the site through the proper application of scientific and engineering principles.” The NYSDEC’s selected remedy did not even comply with the minimum requirement, as it has not eliminated or mitigated the significant threats to public health or the environment.

#### **E. NYSDEC’s Knowledge of Use of Radionuclides at the Bethpage Facilities and Subsequent Denial that Any Evidence of Such Use Exists**

For decades the NYSDEC had extensive knowledge as to the history of operations at the Bethpage Facilities. Despite this knowledge, the NYSDEC never inquired about the use of radioactive materials until 2013.

The NYSDEC has been in possession of the 2000 Arcadis Phase I on Plant 26. Annexed to the 2000 Arcadis Phase I is a letter from Grumman to the NYS Department of Labor (NYS DOL) which discusses the prior use of “loose radioactive materials” at Plant 26. The NYSDEC first provided the 2000 Arcadis Phase I to the Citizens in 2015 and presumably has been in possession of it for several years. **Amazingly, in November 2016, the NYSDEC, in response to a citizen inquiry, definitively stated that only sealed sources of radioactive materials were used at the Bethpage Facilities.** It is unclear how the NYSDEC could disclaim knowledge of the use of “loose radioactive material” at the site when it was in possession of this information.

Despite having this information, it was not until 2013 - thirteen (13) years after the 2000 Arcadis Phase I - that the NYSDEC requested that the Navy and Grumman conduct a records search for any relevant documents pertaining to the use and disposal of radioactive materials at the Bethpage Facilities. The trigger for the NYSDEC’s request was sampling results that revealed radium exceedances of the MCL in the sole source aquifer. The exceedances were confirmed by sampling conducted in 2016.

In September 2016, Grumman responded to NYSDEC’s request for information regarding Grumman’s use and disposal of radioactive material during its operations at the Bethpage Facilities. As fully set forth above, Grumman admitted in the Grumman September 2016 Letter to the widespread use of radioactive materials at the Bethpage Facilities.

#### **F. NYSDEC’s Knowledge That a Plume of Radionuclide Contamination Exists**

Limited sampling of the Bethpage area by the NYSDEC, Navy and Grumman revealed at least six additional wells with radium concentrations exceeding the MCL. When studied in the aggregate, the results reveal radium exceedances throughout the Bethpage area **and reveal that a plume of radioactive material exists.** See Table 1; Map 1. Despite being armed with the information from the 2000 Arcadis Phase I, along with confirmed exceedances in multiple wells, and Grumman’s September 2016 response letter, the NYSDEC neither notified the public nor promptly began a thorough and proper investigation. As of the date of this notice, a formal investigation still has not been performed. These collective failures and unreasonable delays have violated the National Contingency Plan (“NCP”), the ECL and NYSDEC’s own regulations.

#### **G. Even When Mandated by Law, the NYSDEC Has Failed to Investigate the Radioactivity and Has Concealed Its Knowledge**

After thirty (30) years of permitting the plume to migrate south-southeast and impact additional supply wells, the NYSDEC was forced to consider remediation by removal of *all* contaminants in the plume. In 2014, Governor Cuomo signed Bill S07832/A09492 into law (the “2014 Law”)<sup>4</sup> requiring NYSDEC to issue a report to the New York State Legislature outlining a

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<sup>4</sup> Bill number S07832/A09492 was signed into law by the Governor on December 29, 2014 after unanimously passing the New York State Assembly and subsequently passing the New York State Senate 58 to 1.

plan to hydraulically contain and remediate the plume.<sup>5</sup> The New York State Legislature's intent with respect to the 2014 Law is revealed in the legislative findings, which provide, in pertinent part, as follows:

All scientific and engineering studies conducted in this region prove that a growing and migrating plume of contaminants have been traveling through the aquifer system in this region of Long Island. While the concentrations of these contaminants raise questions as to the level of danger they present, it is clear that the most prudent approach is to remove all contaminants possible. This legislation sets out to create a comprehensive report designed to stop the plume's migration, remove the contaminants, and protect the public drinking water supply wells, and the natural resources including the fresh water wetlands and salt water environment from dangerous chemicals and contaminants.

In July 2016, the NYSDEC submitted the report to the New York State Legislature (the "2016 NYSDEC Report"). A review of the 2016 NYSDEC Report reveals the NYSDEC failed to comply with the 2014 Law. The deficiencies of the 2016 NYSDEC Report's are as follows:

1. At the time the 2016 NYSDEC Report was released, the NYSDEC was in possession of the 2000 Arcadis Phase I and was aware of radium exceedances in multiple wells as set forth on Table 1 and Map 1. **Yet, the 2016 NYSDEC Report does not make a single**

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<sup>5</sup> The 2014 Law states as follows:

Section 1. The New York state department of environmental conservation shall create and deliver to the state legislature a report detailing the options of intercepting and remediating a groundwater plume of contaminants, including but not limited to PCE and TCE, emanating from the former Naval Weapons Industrial Plant operated by the United States Navy and the Grumman Aircraft Engineering Corporation facilities in Bethpage, town of Oyster Bay, county of Nassau.

Section 2. This report must focus on the utilization of hydraulic containment and state of the art remediation practices to remove these contaminants without utilizing well head treatment, which is a measure of last resort only. It must focus on how to accomplish this goal in a timely manner so as to stop the migration of the Navy Grumman plume before it reaches the public water supply wells of the Massapequa water district and the South Farmingdale water district as well as the New York American Water Corporation wells. It must be designed to also protect the natural resources, specifically the fresh water bodies, tributaries, wetlands and the salt water natural resources of the Great South Bay from these contaminants.

Section 3. This report shall estimate the cost, scope, and timetable of such a project and how the department of environmental conservation would, along with enlisting the assistance of the New York State department of Law and the United States Department of Justice, enforce the law and cause the United States Navy to pay for or reimburse the costs associated with this project.

Section 4. This act shall take effect immediately.

**mention of radium or any other radioactive material.** The remedial options discussed in the 2016 NYSDEC Report could not possibly be effective when all of the known contaminants, including radioactive materials, were not evaluated.

2. The 2014 Law required the NYSDEC to address “state of the art remediation practices to remove the contaminants without using well head treatment” to timely address the areas of the plume that are already impacted. 2014 Law, § 2. The 2016 NYSDEC Report focuses on hydraulic containment of the plume to prevent further migration and future impacts to Massapequa’s water supply. It does not address the direct remediation of any areas already impacted by the plume.
3. The 2014 Law required the NYSDEC to “focus on how to accomplish this goal in a timely manner.” 2014 Law, § 2. According to the 2016 NYSDEC Report, each of the remedial alternatives considered by the NYSDEC would require operation for over **200 years**. Amazingly, the NYSDEC discussed these alternatives knowing that radioactive material will likely remain in the groundwater and soil vapor during the 200 year remediation process.
4. The remedial options considered by the NYSDEC were to be “designed to also protect natural resources, specifically the freshwater bodies, tributaries, wetlands and salt water natural resources of the Great South Bay from these contaminants.” 2014 Law, § 2. Yet, the remedial alternatives discussed require: (i) the pumping of 730 billion gallons of groundwater from a sole source aquifer that supplies the 3 million residents of Long Island, and (ii) after treating the pumped groundwater for investigated contaminants, depositing the 730 billion gallons of groundwater into a nearby Massapequa tributary or recharge basins. **Remarkably, the NYSDEC failed to consider that the groundwater may be contaminated with radium and pumping it into a neighboring surface water body or recharge basin would exponentially increase the risk of exposure of radioactivity to humans and wildlife.**
5. The 2016 NYSDEC Report does not address how to cause the Navy to pay for or reimburse the costs associated with this project as required by section 3 of the 2014 Law.

#### **H. The NYSDEC’s 2017 Engineering Investigation**

On August 10 2017, the NYSDEC issued a press release announcing “drilling operations underway to assess containment options for U.S. Navy/Northrop Grumman Containment Plume.” The press release, however, fails to make a single mention of radium or radioactivity. Further, the press release reveals the NYSDEC is solely investigating the *engineering design* of how to contain the plume in accordance with the 2016 NYSDEC Report. The press release evidences that the NYSDEC is not conducting an investigation of contaminants in the plume, including radium, to consider remedial alternatives. Accordingly, as recent as August 2017, the NYSDEC has continued its failure to develop a plan to adequately investigate radioactive material in the plume.

As set forth above, the NYSDEC's failures to the public are gross and numerous. The NYSDEC has failed to fulfill its obligations as the lead agency making intervention from the public necessary to ensure that the contamination is fully investigated and remediated without delay.

## V. Navy's Failures

The Navy has known for years that radioactive material was used at the Bethpage Facilities and may be present in a groundwater plume emanating therefrom. Notwithstanding this, the Navy has ignored its obligations under CERCLA to conduct an adequate investigation of the plume.

### A. The Navy's Failure to Address the Presence of Radioactive Materials

In mid-June 2017, the Navy submitted a groundwater report to the United States Congress pursuant to the Water Infrastructure Improvements for the Nation Act of 2016. The Act required the Navy to provide a description of the status of the groundwater contaminants that are leaving the site and migrating to a location within a 10-mile radius of the site. See Title IV, Sec. 5009 of the WIIN Act.

Prior to submitting the report, the Navy had knowledge of elevated levels of radium in the groundwater and had produced sampling results to the Citizens identifying several wells in the vicinity with radium levels exceeding the MCL of 5 pCi/L (see Table 1). **The report submitted to Congress, however, did not mention radioactive materials in any context.** The Navy neglected to address the radium contamination and its potential severity back in 2013 and continues to neglect it today. Senator Schumer recently followed up with Defense Secretary James Mattis demanding an addendum to the June report focusing on the use of radioactive materials. There is no explanation as to why this information was not initially included.

### B. The Navy's Radioactive Records Review

After the detection of radioactive materials in the sole source aquifer, Senator Schumer demanded that all documents regarding use, storage and disposal of radium and related radioactive materials at Bethpage Facilities be made publicly available. On June 27, 2017, the Navy responded to the Senator's request by stating that "Northrop Grumman conducted the day-to-day operations at NWIRP Bethpage, so our historical records, especially radiological records, are limited." This statement reveals that the Navy had knowledge of the use of radioactive materials in Bethpage. The Navy also advised that it already provided all responsive records to the NYSDEC in 2013. Those records were not made public until Senator Schumer made this demand.

The Citizens reviewed those records and were astounded to learn the earliest record produced by the Navy was from 2003 leaving approximately seventy (70) years of undocumented operations. The Citizens question whether the Navy is in possession of additional documents due to this seventy (70) year document gap, as well as, information contained in one of the produced records - the Navy's 2003 Environmental Baseline Survey ("EBS") of the NWIRP facility. The 2003 EBS reveals the Navy conducted a "thorough search of Northrop

Grumman's records as well as interviews of current Northrop Grumman employees." Presumably, the Navy is in possession of these records after conducting such review.

### **C. The Navy's Knowledge of Radioactive Material Use at Bethpage**

The Navy's operations at the Bethpage Facilities commenced in the 1930's. Presumably, the Navy had knowledge that radioactive materials were being used at the Bethpage Facilities during its operations. Based on the documents in the Citizens' possession, the Navy unquestionably had knowledge of radioactive material use for at least twenty (20) years. In November 1997, Grumman advised the Navy by letter that, "under New York State regulations pertaining to licensees of radioactive materials, that they [Grumman] were required to maintain inventory records of all licensable quantities of radioactive materials used on Northrop Grumman properties."<sup>6</sup>

### **D. Navy's Obligation and Failure to Comply with New York State Laws**

The Navy has known that radioactive material was used at the Bethpage Facilities for decades and yet, they have failed to adequately investigate and address it. This has resulted in the migration of the radionuclide contamination through the subsurface at, and adjacent to, the Bethpage Facilities and contamination of the groundwater, the only source of drinking water in the area. The Navy's failures have led to an imminent and substantial endangerment to the public and the environment that should have been investigated and prevented decades ago.

Under 42 U.S.C. § 9620(a)(1) and (2), the Navy, as an agency of the United States and owner of NWIRP, a Federal Facility listed on the Federal Agency Hazardous Waste Compliance Docket, is required to comply with CERCLA. Additionally, pursuant to 42 U.S.C. § 9620(a)(4), the Navy is obligated to comply with the laws of New York State concerning removal and remedial actions, including state laws regarding enforcement. Therefore, the Navy's failure to conduct an appropriate investigation in accordance with the NCP and 6 N.Y.C.R.R. § 375-1.8(e)(1) and (2) (as discussed above) is a gross violation of CERCLA.

## **VI. Notice of RCRA Citizens Suit against the NYSDEC and the Navy**

The facts discussed herein evidence the NYSDEC's and the Navy's blatant knowledge of radium in the groundwater emanating from the Bethpage Facilities. Notwithstanding this knowledge, the NYSDEC and the Navy have caused an imminent and substantial endangerment

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<sup>6</sup> The Navy has strict, joint and several, and retroactive cost-recovery liability under section 107 of CERCLA for investigation and remedial activity stemming from the Bethpage Facilities whether the contamination originates from Navy or Grumman activities. See Niagra Mohawk Power Corp. v. Chevron U.S.A. Inc., 596 F.3d 112 (2d Cir. 2010) ("Section 107 allows for complete cost recovery under a joint and several liability scheme; one PRP can potentially be accountable for the entire amount expended to remove or remediate hazardous materials"); United States of America v. Alcan Aluminum Corp., 315 F.3d 179 (2d Cir. 2003) (CERCLA imposes retroactive liability meaning that CERCLA imposes liability on responsible parties for releases of hazardous substances occurring prior to CERCLA's enactment); State of N.Y. v. Shore Realty Corp., 759 F.2d 1032, 1043-45 (2d Cir. 1985) (responsible parties have strict liability under CERCLA).

to health and the environment by failing to timely and adequately investigate and remediate the subsurface contamination. Pursuant to 42 U.S.C. § 6972(a)(1)(B)-

[A]ny person may commence a civil action on his own behalf . . . against any person, including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution, and including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment.

42 U.S.C. § 6972(a)(1)(B).

In accordance with 42 U.S.C. § 6972(b)(2)(A), the Citizens hereby provide notice of its intention to sue the NYSDEC and the Navy pursuant to 42 U.S.C. § 6972(a)(1)(B). After the ninety (90) day notice period, the Citizens intend to file a citizen suit pursuant to 42 U.S.C. § 6972(a)(1)(B). The Citizens intend to seek all available relief for the creation of an imminent and substantial endangerment in violation of RCRA, including attorneys' fees and costs.

#### **VII. Notice of CERCLA Citizens Suit Against the NYSDEC and the Navy**

In light of all the facts discussed herein, both the NYSDEC and the Navy have had knowledge of radium in the groundwater emanating from the Bethpage Facilities. Notwithstanding this knowledge, the NYSDEC and the Navy have failed to timely and adequately investigate and remediate the subsurface contamination.

The NYSDEC, as lead agency, is obligated to comply with CERCLA and the NCP pursuant to the regulations promulgated under the New York Inactive Hazardous Waste Disposal Site Remedial Program which state:

The goal of the remedial program for a specific site is to restore that site to pre-disposal conditions, to the extent feasible. At a minimum, the remedy selected shall eliminate or mitigate all significant threats to the public health and to the environment presented by contaminants disposed at the site through the proper application of scientific and engineering principles and in a manner not inconsistent with the national oil and hazardous substances pollution contingency plan as set forth in section 105 of CERCLA, as amended as by SARA.

6 N.Y.C.R.R. § 375-2.8(a).

In addition, the Navy is required to comply with CERCLA. Pursuant to 42 U.S.C. § 9620(a)(1), "[e]ach department, agency, and instrumentality of the United States . . . shall be

subject to, and comply with, [CERCLA] in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity, including liability under section 9607 of this title.” Further, pursuant to 42 U.S.C. § 9620(a)(2)-

All guidelines, rules, regulations, and criteria which are applicable to preliminary assessments carried out under [CERCLA] for facilities at which hazardous substances are located, applicable to evaluations of such facilities under the National Contingency Plan, applicable to inclusion on the National Priorities List, or applicable to remedial actions at such facilities shall also be applicable to facilities which are owned or operated by a department, agency, or instrumentality of the United States in the same manner and to the extent as such guidelines, rules, regulations, and criteria are applicable to other facilities. No department, agency, or instrumentality of the United States may adopt or utilize any such guidelines, rules, regulations, or criteria which are inconsistent with the guidelines, rules, regulations, and criteria established by the Administrator under [CERCLA].

42 U.S.C. § 9620(a)(2).

Additionally, the Navy is required to comply with applicable state laws regarding removal and remedial action, including state laws regarding enforcement. See 42 U.S.C. § 9620(a)(4). Accordingly, the Navy, as an agency of the United States and owner of NWIRP, a Federal Facility listed on the Federal Agency Hazardous Waste Compliance Docket, is required to comply with CERCLA and its implementing regulations, including those set forth in the NCP.

Pursuant to the NCP, a remedial investigation (RI) and feasibility study (FS) are required to be conducted to assess the site conditions and evaluate alternatives to the extent necessary to select a remedy and remedial actions are to be implemented as soon as site data and information make it possible to do so. See 40 C.F.R. § 300.430. As the NYSDEC and the Navy have failed to conduct an adequate remedial investigation of radium contamination discussed above, the NYSDEC and the Navy are out of compliance with the above-referenced statutes, as applicable.<sup>7</sup> Accordingly, the NYSDEC and the Navy are in gross violation of CERCLA.

Pursuant to 42 U.S.C. § 9659(a)(1)-

[A]ny person may commence a civil action on his own behalf--

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<sup>7</sup> Furthermore, after the remedial investigation is complete, a feasibility study must consider remedial actions that enable the maximum contaminant level goals (“MCLGs”) established under the Safe Drinking Water Act to be attained in accordance with 40 C.F.R. § 300.430(e). As stated above, the current selected remedy of wellhead treatment cannot effectively treat radium and the unknown contaminants since an adequate investigation has not been performed and creates an illusion that residents are protected. It is critical that a suitable, effective and more permanent remedial action be implemented in accordance with 40 C.F.R. § 300.430(f). Upon completion of a new remedial investigation, a new feasibility study must be conducted and remedial alternative implemented.



(1) against any person (including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution) who is alleged to be in violation of any standard, regulation, condition, requirement, or order which has become effective pursuant to this chapter (including any provision of an agreement under section 9620 of this title, relating to Federal facilities)

42 U.S.C. § 9659(a)(1).

The Citizens hereby provide notice, pursuant to 42 U.S.C. § 9659(d), of its intent to file suit against the NYSDEC and the Navy pursuant to 42 U.S.C. § 9659(a)(1) for the gross violations of CERCLA, 6 N.Y.C.R.R. § 375-2.8(a), 40 C.F.R. § 300.430 and 42 U.S.C. §§ 9620(a)(1), (2) and (4). After the sixty (60) day notice period, the Citizens intend to file a citizen suit pursuant to 42 U.S.C. § 9659(a)(1). The Citizens intend to seek all available relief for the NYSDEC's and the Navy's violations, including attorneys' fees and costs.

### **VIII. Remedy Requested**

The NYSDEC and the Navy have failed to address the radioactive and other contaminant issues and cannot be relied upon to proceed with the necessary work. The Citizens, which will be advised by their hydrogeologic experts, must provide the analysis and characterization to prevent the continued failures of the NYSDEC and the Navy. Under CERCLA's regulations, the citizens have substantial authority. Indeed, 40 C.F.R. § 300.430(c)(2)(A) provides that the NYSDEC and the Navy must "[e]nsure the public appropriate opportunities for involvement in a wide variety of site related decisions, including site analysis and characterization, alternative analysis and selection of remedy."

Given the significant quantities of contaminants that persist on and offsite, it is apparent that more thorough efforts are needed to deal with the mass of contamination that has been inadequately addressed to date. The Citizens intend to file suit to request that a court with jurisdiction enter an order and/or judgment:

1. Requiring an immediate and complete investigation and delineation of the radionuclide contamination for the purpose of enabling a comprehensive evaluation of the nature and extent of underlying contamination so that adequate remediation work may proceed. This would likely require, *inter alia*, access to Navy, Grumman and NYSDEC radioactive materials records and a thorough subsurface investigation;
2. Requiring, through a formal feasibility study, the development of a more effective remediation strategy designed to eliminate or significantly reduce the current threat to the environment and human health;
3. Requiring the NYSDEC to select an adequate and proper remedial alternative with substantial participation of the Citizens;

4. Requiring the NYSDEC to issue a remedial decision or Record of Decision with substantial participation of the Citizens;
5. Requiring the implementation of the necessary remedial actions based on the feasibility study and the remedial decision;
6. Authorizing the Citizens, on behalf of the State of New York and through undersigned counsel, to pursue any and all causes of action (under CERCLA or otherwise) to fund above items one (1) through five (5) and/or pursue a cost recovery action against any and all potentially responsible parties;
7. Appointing Rigano LLC as Administrator and Master Coordinator to provide direction to contractors, consultants, water districts, citizens and government agencies to implement the investigatory and remedial work requested herein. Rigano LLC would operate under NYSDEC oversight with a Court of proper jurisdiction to hear and settle disputes. The Administrator and Master Coordinator will be compensated as a percentage of proceeds disbursed in accordance with its duties;
8. Awarding Citizens the costs of litigation, including legal fees, expert witness fees and associated litigation costs, as authorized under RCRA and CERCLA.

In the event that the NYSDEC or the Navy choose to proceed with these items independent of the Citizens, the Citizens would proceed, if necessary, with a court challenge, perhaps through Article 78, challenging the NYSDEC or Navy's attempt to proceed with the work based on their past outrageous failure to address the radionuclide contamination of the sole source aquifer.

#### **IX. Long Island Pure Water Ltd.**

The entity giving this notice is Long Island Pure Water Ltd. Long Island Pure Water Ltd. is a nonprofit, public benefit corporation organized under the laws of New York State. The specific purpose of Long Island Pure Water Ltd. is to promote pure water for the benefit of individuals who reside and visit Long Island through management, negotiations, legal proceedings and other activities as permissible under the law for a civic organization. The Citizens have two highly experienced hydrogeologists who are technical advisors and will advise the Citizens on proceeding with the investigation and remedial work.

Long Island Pure Water Ltd. retained undersigned legal counsel with respect to the issues raised in this notice. All communications should be addressed to:

James P. Rigano, Esq.  
Rigano LLC  
538 Broad Hollow Road, Suite 217  
Melville, New York 11747  
Tel. 631-756-5900  
Email: [jrigano@riganollc.com](mailto:jrigano@riganollc.com)

The violations of RCRA and CERCLA set forth in this notice affect the economic stability, physical health, property values and drinking water supply of the members of Long Island Pure Water Ltd. who reside in the affected areas. The Citizens use the water for drinking, bathing, cooking, gardening and the like, and their health, use and enjoyment of this natural resource are conditions specifically impaired by these violations.

## **X. Conclusion**

RCRA specifically provides a ninety (90) day “notice period” to promote resolution of disputes while CERCLA specifically provides a sixty (60) day “notice period”. The Citizens strongly encourage the NYSDEC and the Navy to contact the Citizens through their counsel, within thirty (30) days after receipt of this notice to initiate a discussion regarding the allegations discussed herein. In the absence of productive discussions to resolve this dispute, the Citizens will promptly file a citizen’s suit for the stated violations.

The violations of law described herein are based upon the best information currently available to the Citizens. Each of the types of violations is ongoing or reasonably likely to continue, and the Citizens expect that discovery will identify additional violations. Citizens intend to sue for all known and unknown violations.

The claims set forth above are not exclusive. This notice is sent without waiver of, or any prejudice to, the rights of the Citizens to advance any additional or further legal and/or factual claims based upon information that are now known or may become known in the future.

Very truly yours,

*James P. Rigano*

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James P. Rigano  
Rigano LLC

Enclosures

cc:

Wes Bush, Chief Executive Officer and President  
Northrop Grumman Corporation  
2980 Fairview Park Drive  
Falls Church, VA 22042

Jeff Sessions, U.S. Attorney General  
U.S. Department of Justice  
950 Pennsylvania Avenue, NW  
Washington, DC 20530-0001

[Carbon Copy Continued on Following Page]

Eric T. Schneiderman, New York State Attorney General  
Office of the Attorney General  
The Capitol  
Albany, NY 12224-0341

Scott Pruitt, U.S. EPA Administrator  
USEPA Headquarters  
William Jefferson Clinton Building  
1200 Pennsylvania Avenue, N. W.  
**Mail Code:** 1101A  
Washington, DC 20460

Catherine R. McCabe, Acting Regional Administrator, Region II, U.S. EPA  
Main Regional Office  
290 Broadway  
New York, NY 10007-1866

Martin Brand, Deputy Commissioner  
Remediation and Materials Management  
New York State Department of Environmental Conservation  
625 Broadway  
Albany, NY 12233

James Mattis, Secretary of Defense  
United States Department of Defense  
1400 Defense Pentagon  
Washington, DC 20301-1400

<b><u>EXHIBIT A</u></b>	
<b><u>RADIONUCLIDES</u></b>	<b><u>RADIONUCLIDES</u></b>
(FE-55)	(Bi-210)
(Zn-65)	(Kr-85)
(Sn-113)	(Th-230)
(Y-88)	(Na-22)
(Hg-203)	(Mn-54)
(Tc-99)	(Co-57)
(Ni-63)	(Tl-204)
(Ir-192)	(Rh-106)
(Yb-169)	(Pb-210)
(Eu-152)	(Ca-252)
(Sr-90)	(S-35)
(Co-60)	(U-238)
(Ta-182)	(U-235)
(H-3)	(U-234)
(C-14)	Depleted Uranium
(Am-241)	Enriched Uranium
(Pm-147)	Uranium hexafluoride
(Ba-133)	(Pu-238)
(Ra-226)	(Pu-239)
(Ra-228)	(Pu-241)
(Cr-51)	(Pu-244)
(Ba-140)	Thorium nitrate
(Th-232)	Thorium alloy metal
(Ca-45)	Radon
(Cs-137)	Gross Alpha
(Po-210)	Gross Beta
(Po-218)	
<b><u>EMERGING CONTAMINANTS</u></b>	
1,4 dioxane	
perfluorooctane sulfonic acid (PFOS)	
perfluorooctanic acid (PFOA)	
perfluorinated compounds (PFCs)	

<b>EXHIBIT B</b>					
1,1-dichloroethane	4-chlorotulene	Carbon tetrachloride	Endothall	metribuzin	total dissolved solids
1,1-dichloroethene	4-isopropyltoluene (P-Cumene)	Chlordane	Endrin	n-butylbenzene	total haloacetic acid
1,1-dichloropropene	Alachlor	Chloride	Ethylbenzene	n-propylbenzene	total hardness
1,1,1-trichloroethane	Aldicarb	Chloroacetic acid	Fluoride benzo(A)pyrene	nickel	total PCBs
1,1,1,2-tetrachloroethane	Aldicarb sulfone	Chlorobenzene	Fee cyanide	nitrate	total trihalomethanes
1,1,2-trichloroethane	Aldicarb sulfoxide	Chlorodifluoromethane	Glyphosate	nitrite	toxaphene
1,1,1,2,2-tetrachloroethane	Aldrin	Chloroethane	Hardness, calcium	nitrogen, ammonia	trans-1,2-dichloroethene
1,2-dibromo-3-chloropropane	Alkalinity	Chloroform	Heptachlor	o-xylene	trans-1,3-dichloropropene
1,2-dibromoethane (EDB)	Antimony	Chloromethane	Heptachloro epoxide	odor	trichloroacetic acid
1,2-dichlorobenzene	Arsenic	Chromium	Hexachlorobenzene	oxamyl	trichloroethane (TCE)
1,2-dichloroethane	Altrazine	Cis-1,2-dichloroethene	Hexachlorobutadiene	pentachlorophenol	trichlorofluoromethane
1,2-dichloropropane	Barium	Cis-1,3-dichloropropene	Hexachlorocyclopentadiene	perchlorate	turbidity
1,2,3-trichlorobenzene	Benzene	Color	Iron	pH	vinyl chloride
1,2,3-trichloropropane	Beryllium	Copper	Isopropylbenzene (cumene)	picloram	zinc
1,2,4-trichlorobenzene	Bi(2-ethylhexyl)adipate	Corrosivity	Langlier saturation index	propachlor	
1,3-dichlorobenzene	Bis(2-ethylhexyl)phthalate	Cyanide	LAS, molecular weight	sec-butylbenzene	
1,3-dichloropropane	Bromoacetic acid	Dalapon	Lead	selenium	
1,3,5-trimethylbenzene	Bromobenzene	Detergents (MBAs)	Lindane	silver	
1,4-dioxane	Bromochloromethane	Dibromochloromethane	m,p-xylene	simazine	
1,4-dichlorobenzene	Bromodichloromethane	Dibromomethane	magnesium	sodium	
2-chlorotoluene	Bromoform	Dicamba	manganese	syrene	
2,2-dichloropropane	Bromoethane	Dichloroacetic acid	mercury	sulfate	
2,4-D	Butachlor	Dichlorodifluoromethane	methomyl	tert-butylbenzene	
2,4,5-TP (silvex)	Cadmium	Dieldrin	methoxychlor	tetrachloroethene	
3-hydroxycarbofuran	Calcium	Dinoseb	methyl ter butyl ether (MTBE)	thallium	
4-bromofluorobenzene	Carbaryl	Dioxin	methylene chloride	toluene	
	Carbofuran	Diquat	metolachlor	total aldicarbs	

TABLE 1

<u>SOURCE</u>	<u>DATE</u>	<u>WELL</u>	<u>RADIUM 226+228</u>	<u>Location on Map 1</u>
H2M Labs	8/14/2012	Plant 4	5.80 pCi/L	6
BWD Water Quality Data	2012	Well No. 4 N-06915	5.59 pCi/L	6
BWD Water Quality Data	2013	Well No. 4 N-06915	6.95 pCi/L	6
Navy and Northrop Grumman GM-38 Investigation	6/17/2013	RW2-MW1	6.80 pCi/L	5
Navy and Northrop Grumman GM-38 Investigation	6/18/2013	RW2-MW3	5.23 pCi/L	10
Grumman-Arcadis 2015 Data	10/5/2015	GM-15SR	7.81 pCi/L	4
Grumman-Arcadis 2015 Data	12/7/2015	Well No. 4 N-06915	5.92 pCi/L	6
Resolution Consultants	2/29/2016	GM-15S	8.59 pCi/L	4
Resolution Consultants	2/29/2016	Well No. 4 N-06915	5.21 pCi/L	6
Resolution Consultants	2/29/2016	Well No. 4 N-06915 (DUP)	5.55 pCi/L	6
Northrop Grumman Arcadis "Split-Sample" with NYSDEC	4/13/2016	HN-40S	6.42 pCi/L	2
NYSDEC 2nd Phase Results	Apr-16	HN-40S	5.59 pCi/L	2
NYSDEC 2nd Phase Results	Apr-16	GM-37D	5.63 pCi/L	3
ENSAFE April 2016 Report	4/19/2016	TT-305S	6.18 pCi/L	1
J.C. Broderick & Associates, Inc. May 2017 Report	2/24/2017	MW-1	15.72 pCi/L	9
J.C. Broderick & Associates, Inc. May 2017 Report	2/24/2017	MW-2	24.74 pCi/L	9
J.C. Broderick & Associates, Inc. May 2017 Report	2/24/2017	MW-3	10.46 pCi/L	9

# MAP 1

### Map 1 Points

- 1 TT305S
- 2 HN-40S
- 3 GM-37D
- 4 GM-15S
- 5 RW2-MW1
- 6 N-6915
- 7 Plant 26
- 8 Building 10
- 9 Bethpage High School
- 10 RM2-MW3

