Massapequa Water District

Summary of the Navy-Grumman Plume Concerns and Recommended Actions

September 2010

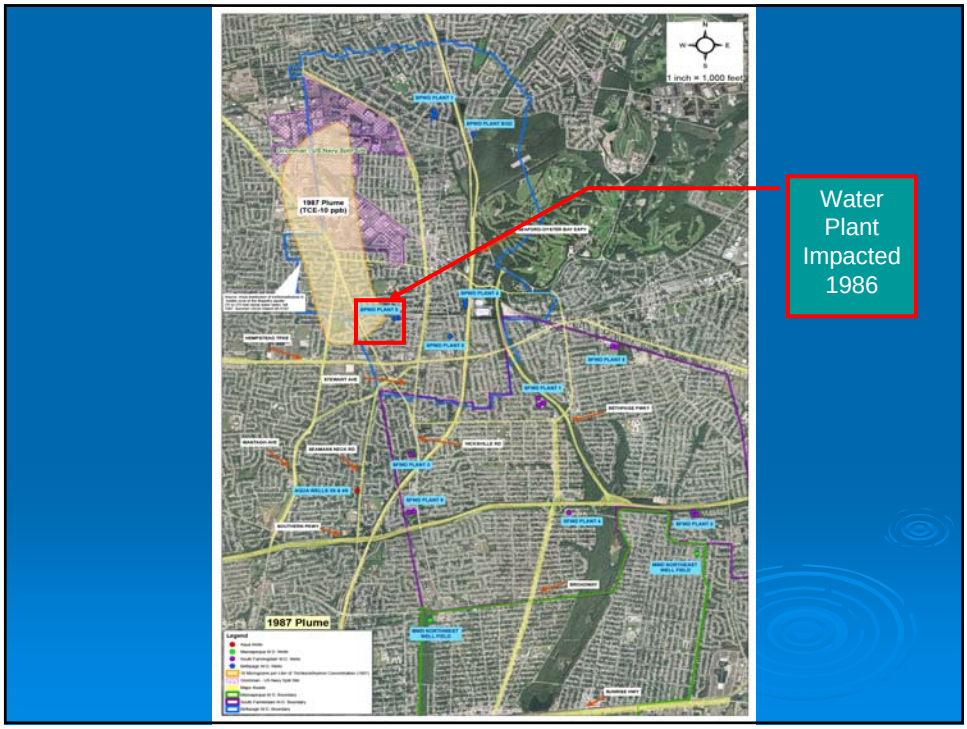
Overview

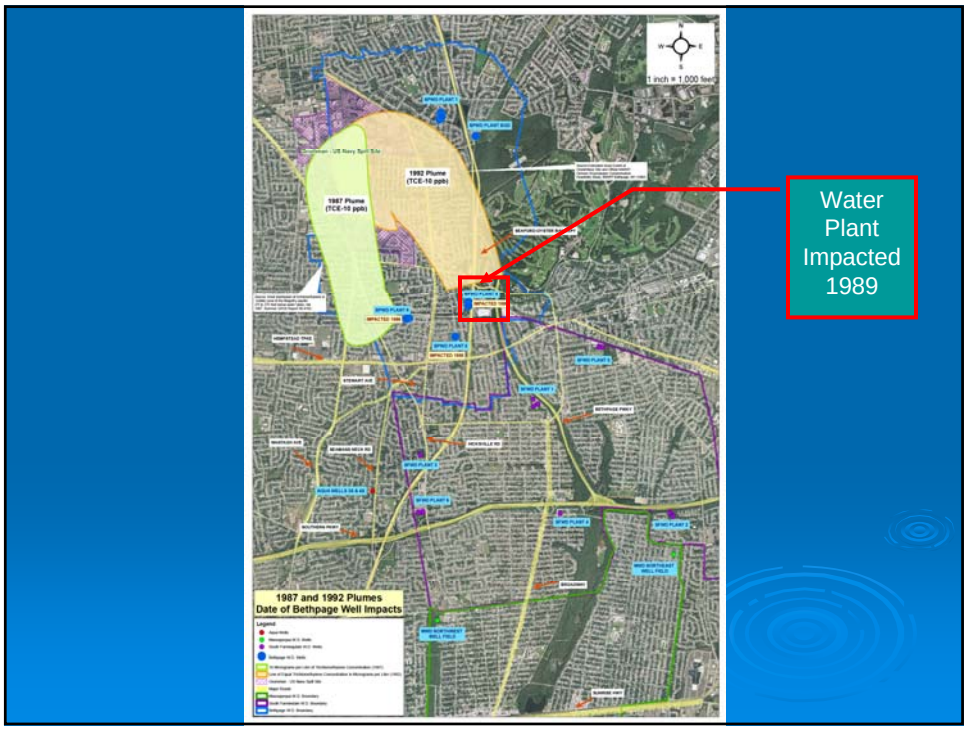
- The Massapequa Water District continues to be concerned with the lack of cleanup and lack of cleanup enforcement regarding the Grumman Bethpage site.
- Over the past decade The District has placed the Senators Schumer & Clinton, Rep. King, Nassau County Department of Health, New York State DEC and USEPA on notice of our concern that these highly contaminated plumes be remediated before they have the ability to impact our vital drinking water supply wells.

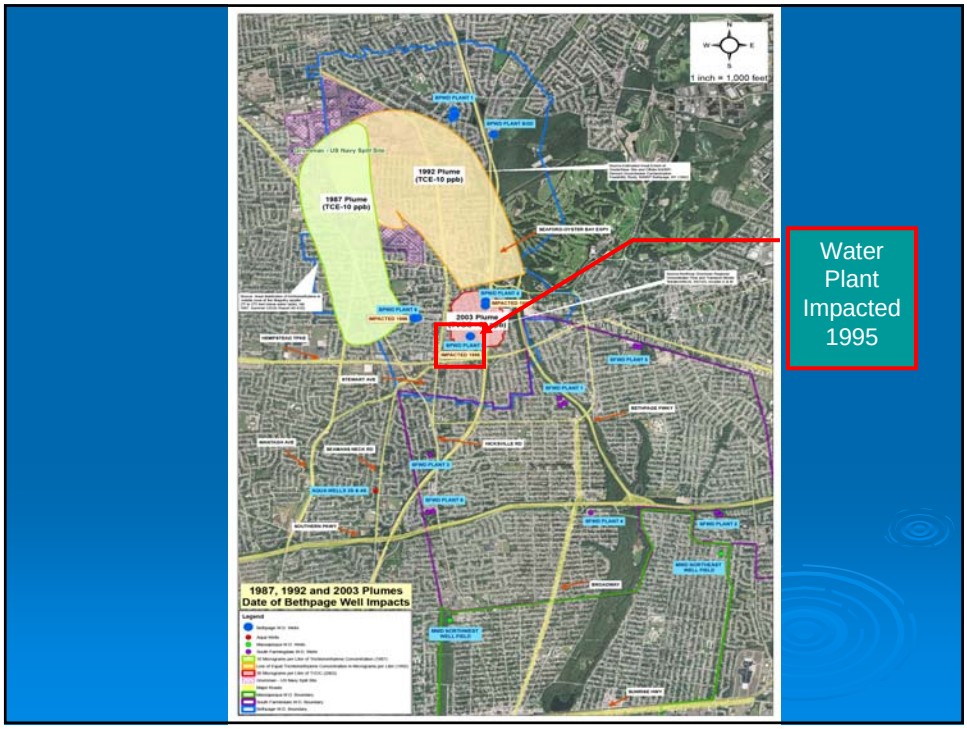
Overview

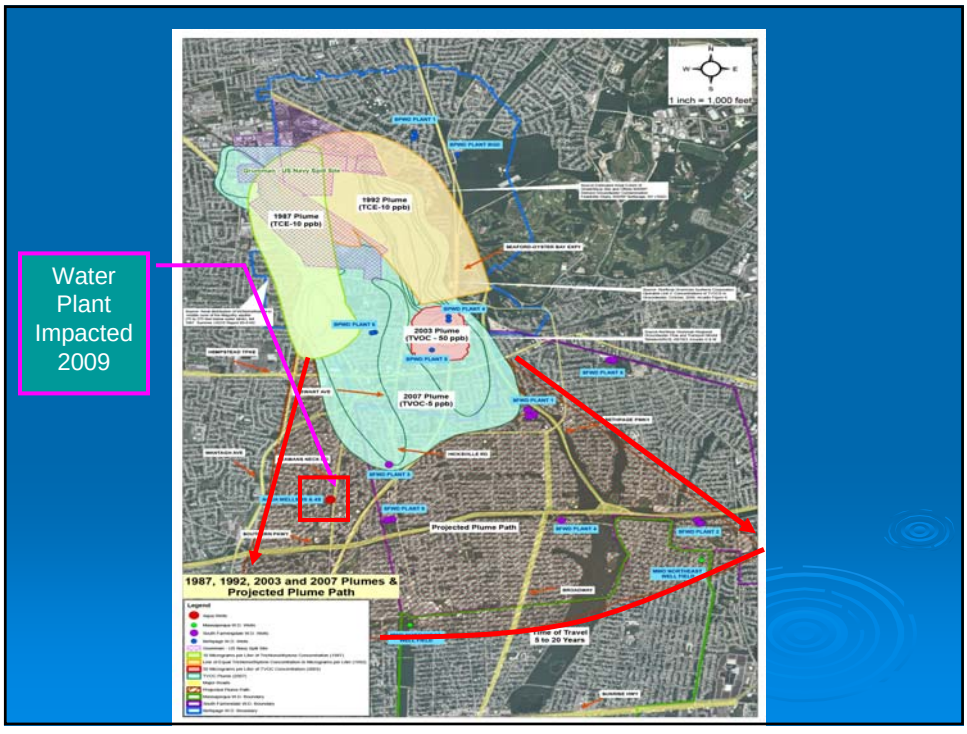
- The NYSDEC contends that the correct actions are being undertaken.

Lets look at the facts……..


1 inch = 1,000 feet
1987 Plume
(TCE-10 ppb)
1987 Plume
Water Plant Impacted 1986


1 inch = 1,000 feet
1992 Plume
(TCE-10 ppb)
1987 Plume
(TCE-10 ppb)
1987 and 1992 Plumes
Date of Bethpage Well Impacts
Water Plant Impacted 1989


1 inch = 1,000 feet
1992 Plume
(TCE-10 ppb)
1987 Plume
(TCE-10 ppb)
2003 Plume
1987, 1992 and 2003 Plumes
Date of Bethpage Well Impacts
Water Plant Impacted 1995


1 inch = 1,000 feet
1992 Plume
(TCE-10 ppb)
1987 Plume
(TCE-10 ppb)
2003 Plume
(TVOC - 50 ppb)
2007 Plume
(TVOC-5 ppb)
Projected Plume Path
1987, 1992, 2003 and 2007 Plumes &
Projected Plume Path
Time of Travel
5 to 20 Years
Water Plant Impacted 2009

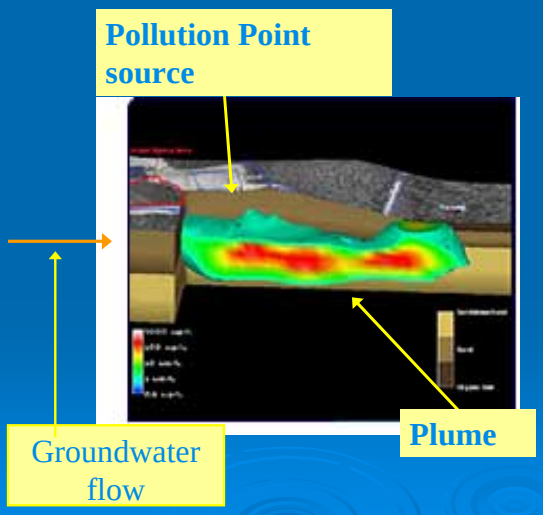
Summary of Wells in Harms Way

- 25 wells total
  - Wellhead Treatment (WHT) – 5 wells
  - WHT Construction – 3 wells
  - WHT planning – 3 wells
  - Threatened wells – 14 Wells

The maps clearly show…

- 23 years of investigation and no satisfactory progress to protect drinking water supply wells.
- Drinking water wells continue to be impacted.
- NYSDEC does not have a good record for protecting Long Island's sole source aquifer.

Wells in harms way….



Concern

- Why is the Massapeqa Concerned ?
  - Lack of "**Leadership**" !
  - **Who is in charge?**

Concerns

- The public drinking water supply wells operated by the Massapequa Water District are hydraulically down gradient of the massive and extensive Grumman groundwater contamination plume.
- It is not a matter of “if” but “**when will**” the plume impact the supply wells

Concerns

- The option to shut down supply wells is not viable since the facilities are vital to meeting the water supply and fire protection needs of the 46,000 people living in the community.
- A total population of 160,000 are served by wells that are impacted or threatened by the plume.

Concerns

- The availability of land to drill new supply wells within a suburban area in conjunction with newly promulgated sanitary setback regulations and the large size of the plume makes this a non-viable option.
- NYSDEC prohibits drilling supply wells south of Sunrise Highway and into the pure water of the Lloyd formation.

Concerns

- Wellhead treatment is not desirable based on health risk concerns.
- Over the past 25 years the EPA has continued to set forth more stringent requirements for public drinking water.
- These more stringent measures primarily have initiated more stringent wellhead treatment facilities.

Drinking Water Exposure Concerns

(1) Prior to 1970 the primary plume contaminants were not regulated

(2) From the late 1970s to December 31, 1988 the regulatory limit for the primary plume contaminants were 50 ppb

(3) From Jan. 1, 1989 to present the regulatory limit for the primary plume contaminants is 5 ppb

(4) - EPA is presently evaluating lowering the regulatory limit for PCE and TCE to 2 ppb or less.

Drinking Water Exposure Concerns

- In theory a person could drink water over a 20 year period at 50 ppb drinking water MCL and ingest over 10 pounds of contaminants (PCE / TCE).
- Therefore the plume clean-up must be in accordance with the EPA MCL Goal (MCLG) of zero

Concerns

- **Poor Data**: The NYSDEC has proven that water quality projections have been incorrect.

Concerns

- **Ineffective Modeling**: It should be noted that groundwater modeling on behalf of Grumman has been performed in the past. Such modeling forecasted that outpost early detection wells were projected to remain clean for approximately 10 years but were impacted **only in a few years**.

Concerns

- Collateral Damage:
  - The plume will eventually impact the Great South Bay and adversely impact the saltwater estuary.
  - Soil vapor intrusion.

Wellhead Treatment and Clean-up Costs

- In 2001, the State DEC issued a Record of Decision for wellhead treatment and other remedial activities at an estimated cost of $29 million to $35 million. This figure appears to only include wellhead treatment for Bethpage Water District supply wells.

Wellhead Treatment and Clean-up Costs

- The 2001 State DEC Record of Decision also estimated that costs to clean up the plume, plus additional remedial work included in the figure outlined in the prior slide, as estimated at $63 million to $65 million. At the time, the plume was smaller than present.

Wellhead Treatment and Clean-up Costs

- A 2010 evaluation by the Navy concluded that the construction, operation and maintenance for two public supply wells impacted by the plume is $7 million per well.
- There are 25 public supply wells that are expected to be impacted by the contaminant plume.

Wellhead Treatment and Clean-up Costs

- The anticipated cost for wellhead treatment (25 wells times $7 million per supply well) is $175 million.
- It is clear that the cost and effectiveness of wellhead treatment as compared to a comprehensive cleanup of the plume is erroneous.

The Law……

- Allowing the groundwater contamination to remain and not be subject to cleanup is not in compliance with the law.

What is the Massapequa W.D. facing?

- Shutdown of supply wells
- Emergency wellhead treatment
- Permanent and costly wellhead treatment
- Adverse tax rate impact

Estimated Water District Cost Impact…..

To replace lost capacity and provide wellhead treatment for all Massapequa drinking water wells:

$100 million

Recommended Actions

- Full horizontal and vertical delineation of the plume must be performed.
- Outpost early warning detection wells must be installed at strategic locations and depths upgradient of all Massapequa Water District supply wells.
- Upon successful comprehensive plume delineation, updated groundwater modeling must be performed using the latest proven software application.

Recommended Actions

- Remediation and / or a hydraulic barrier must be implemented to prevent the plume from migrating further south toward the Massapequa Water District. Delineation and modeling must be completed in order to properly assess and implement this action.
- Assess the current Technical Advisory Committee (TAC) that has been established to monitor investigation and remediation activities associated with the Grumman plume. Determine and implement improvements to provide proper plume investigation and remediation oversight by the TAC.

The bottom line

- We need …..
  - Leadership
  - Better data
  - Better modeling
  - Hydraulic barrier
  - Plume clean-up
  - Adequate funding (no impact to the local taxpayer)
  - Immediate action

We need action now!

- Time is of the essence. For every day that passes, the plume moves closer to our vital drinking water wells. We need to protect our community, families, children and our future!