

July 2013

Denial of Access to the Lloyd Aquifer: The Impossibility of Overcoming the Lloyd Moratorium

Krista M. Tenney

Pace University School of Law, ktenney@law.pace.edu

Follow this and additional works at: <https://digitalcommons.pace.edu/pelr>

Recommended Citation

Krista M. Tenney, *Denial of Access to the Lloyd Aquifer: The Impossibility of Overcoming the Lloyd Moratorium*, 30 Pace Env'tl. L. Rev. 1222 (2013)

DOI: <https://doi.org/10.58948/0738-6206.1733>

Available at: <https://digitalcommons.pace.edu/pelr/vol30/iss3/7>

This Article is brought to you for free and open access by the School of Law at DigitalCommons@Pace. It has been accepted for inclusion in Pace Environmental Law Review by an authorized administrator of DigitalCommons@Pace. For more information, please contact dheller2@law.pace.edu.

COMMENT

Denial of Access to the Lloyd Aquifer: The Impossibility of Overcoming the Lloyd Moratorium

KRISTA M. TENNEY*

I. INTRODUCTION

The Lloyd Aquifer on Long Island, New York is a heavily protected source of groundwater. In 1986, New York passed a law that banned the granting of new permits to either drill wells into the Lloyd Aquifer or to permit new withdrawals of water from the aquifer. This moratorium is applicable to non-coastal communities, as defined by a separate statute. An amendment was passed in 2008 that also prohibited the storage or pumping of water into the Lloyd Aquifer. The amendment applies to all communities, regardless of their status as coastal or non-coastal.

This article will discuss the moratorium as it exists today. Section two of this article discusses the geological framework, hydrogeology, pumpage, and saltwater intrusion of the Long Island Aquifer System. Section three discusses the history, development, and agency interpretation of the moratorium. Section four analyzes the likelihood of a community being granted a permit to drill a new well and explores the possibility of a particular community on Long Island with a contaminated aquifer obtaining a permit to drill into the Lloyd Aquifer. Section five concludes by proposing that the New York State Department of Environmental Conservation should promulgate regulations that provide a clear interpretation of the moratorium's conditions.

* J.D. Candidate, Certificate in Environmental Law, Pace University School of Law, 2013. Thank you to Kimberly Klein for her help in selecting a topic, as well as the PACE ENVIRONMENTAL LAW REVIEW staff for their editing assistance throughout the process.

II. THE LONG ISLAND AQUIFER SYSTEM

A. Geologic Framework and Hydrogeology

According to *The Oxford Companion to the Earth*, an aquifer is defined as “a geological formation or group of formations with sufficient permeability and water-saturated porosity to transmit and store significant quantities of subsurface water under normal hydraulic gradients.”¹ Aquifers usually contain large amounts of groundwater, and that groundwater is a vital source of drinking water.²

Illustrative of the significance of groundwater is the fact that ninety-five percent of all fresh water, excluding glaciers, consists of groundwater. As a vital source of drinking water, groundwater supports approximately thirty-eight percent of community water systems in the nation, eighty-three percent of the water systems serving populations of 10,000 or less, and ninety-five percent of the water supply of Americans living in unincorporated areas.³

Aquifers are the primary source of drinking water for the communities on Long Island, New York.⁴ The four counties of Long Island, New York are underlain by four main aquifers—the Upper Glacial Aquifer, the Jameco Aquifer, the Magothy Aquifer, and the Lloyd Aquifer.⁵ The uppermost aquifer is the Upper Glacial Aquifer, “followed in descending order by the Jameco aquifer, the Magothy aquifer[,] and finally the Lloyd aquifer, the deepest and purest of the four.”⁶ However “the three most important aquifers are the Upper Glacial Aquifer, the Magothy

1. *Aquifer Definition*, ENCYCLOPEDIA.COM, <http://www.encyclopedia.com/searchresults.aspx?q=aquifer> (last visited Sept. 9, 2012).

2. Kimberly Till Lisenby, Commentary, *Rights to Groundwater in Alabama and the Reasonable Use Doctrine: An Assessment of Martin v. City of Linden*, 48 ALA. L. REV. 1045, 1047 (1997).

3. *Id.*

4. See *Long Island Aquifers*, DEP'T OF ENVTL. CONSERVATION, <http://www.dec.ny.gov/lands/36183.html> (last visited Mar. 28, 2012) [hereinafter DEC, *Long Island Aquifers*].

5. See ANTHONY CHU, U.S. GEOLOGICAL SURVEY, HYDROGEOLOGY OF THE LLOYD AQUIFER ON LONG ISLAND, NEW YORK 2 (2006), available at <http://pubs.usgs.gov/of/2006/1341/>.

6. *Town of Hempstead v. Flacke*, 441 N.Y.S.2d 487, 488 (N.Y. App. Div. 1981).

Aquifer, and the Lloyd Aquifer.”⁷ The Jameco Aquifer has relatively little importance because it is scarcely used and only located in Kings County and the southern part of Queens County.⁸ Of the three important formations, the Lloyd Aquifer is the most heavily protected.⁹

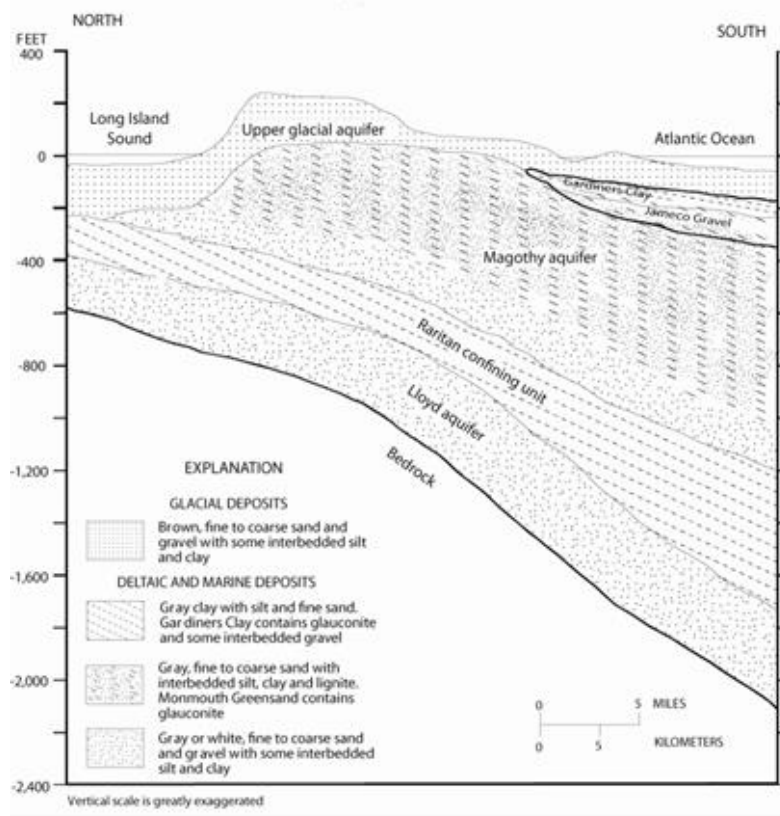


Figure 1. Cross-section of major hydrogeologic units along north-south section of Long Island, N.Y.¹⁰

7. See DEC, *Long Island Aquifers*, *supra* note 4.

8. PERRY G. OLCOTT, U.S. GEOLOGICAL SURVEY, GROUND WATER ATLAS OF THE UNITED STATES: SURFICIAL AND NORTHERN ATLANTIC COASTAL PLAIN AQUIFER SYSTEMS, LONG ISLAND (1995), available at http://pubs.usgs.gov/ha/ha730/ch_m/M-text3.html.

9. See DEC, *Long Island Aquifers*, *supra* note 4 (discussing current "moratorium on the use of water from this formation in order to maintain it for future generations.").

10. CHU, *supra* note 5, at 3.

The Upper Glacial Aquifer, an unconfined aquifer, consists of sediments deposited during the Pleistocene ice ages.¹¹ An aquifer is categorized as unconfined when the top surface of the formation is the water table. Two moraines, the Harbor Hill Moraine and Ronkonkoma Moraine, are “poorly sorted glacial till (sand, pebbles, rock, boulders) deposited at the glacier’s leading edge. Found between these moraines and to the south, are outwash plains of well sorted sand and gravel.”¹² This aquifer “contains large quantities of ground water in both the outwash plain and the morainal deposits.”¹³ Where present, the formation known as the Gardiners Clay—which underlies the Upper Glacial Aquifer—significantly restricts the vertical flow occurring between the Upper Glacial Aquifer and the underlying aquifers.¹⁴

The Magothy Aquifer is the largest aquifer underlying Long Island.¹⁵ It has continental origins and consists of “sand deposits alternating with clay.”¹⁶ The aquifer ranges in thickness up to one thousand feet.¹⁷ The majority of Nassau County and approximately half of Suffolk County obtain their water from the Magothy.¹⁸

The Lloyd Aquifer is the oldest and deepest Long Island aquifer.¹⁹ The water contained in the formation is approximately six thousand years old.²⁰ This aquifer is the sole source of drinking water for approximately ten percent of Nassau County

11. See *Brooklyn–Queens Aquifer System*, EPA, <http://www.epa.gov/region2/water/aquifer/brooklyn/brooklyn.htm> (last visited Mar. 28, 2012) [hereinafter EPA, *Brooklyn–Queens*].

12. DEC, *Long Island Aquifers*, *supra* note 4.

13. *Nassau–Suffolk Aquifer System*, EPA, <http://www.epa.gov/region02/water/aquifer/nasssuff/nassau.htm#18> (last visited Mar. 28, 2012) [hereinafter EPA, *Nassau–Suffolk*].

14. EPA, *Brooklyn–Queens*, *supra* note 11.

15. DEC, *Long Island Aquifers*, *supra* note 4.

16. DEC, *Long Island Aquifers*, *supra* note 4; see also EPA, *Brooklyn–Queens*, *supra* note 11.

17. Suffolk Cnty. Dep’t of Env’tl. Control, 1976 N.Y. ENV LEXIS 40, at *49 (N.Y. Dep’t of Env’tl. Conservation May 3, 1976).

18. DEC, *Long Island Aquifers*, *supra* note 4.

19. *Id.*

20. *Id.*

residents.²¹ It is a confined aquifer, underlain by bedrock and overlain by Raritan clay.²² Its composition is mostly Cretaceous age “fine to coarse, quartz-rich sand and gravel, commonly within a clayey matrix. . . .”²³ The aquifer varies in thickness from “zero [feet] in northern Kings, northwest Queens and Nassau, and northeast Suffolk Counties—to over 500 ft in south central Suffolk County.”²⁴ Although the quality of water in the Lloyd Aquifer is generally good, salinity and high iron content have been recorded.²⁵ The Raritan clay “protects the Lloyd Aquifer from contamination from the overlying aquifers.”²⁶ This clay layer also restricts the vertical flow between the Lloyd Aquifer and the upper aquifers.²⁷

B. Pumpage and Saltwater Intrusion

Long Island’s only source of potable public water supply is groundwater, with precipitation being the only source of groundwater.²⁸ In Nassau County, public-supply pumping from the Lloyd Aquifer has been restricted to the north and south shores.²⁹ Withdrawals from the Lloyd Aquifer in Suffolk County are limited to a minimum number of wells on the south shore barrier islands.³⁰ Kings County had a single well drilled into the Lloyd Aquifer, which was shut down in 1946, while Queens County continues to pump from the Lloyd Aquifer to this day.³¹ Population increases and land use policies have led to an increase in the amount of water withdrawn from the aquifers, which has

21. A.B. 2986, 234th Assem., Reg. Sess. (N.Y. 2007), *available at* http://assembly.state.ny.us/leg/?default_fld=&bn=A02986&term=2007&Summary=Y&Memo=Y.

22. *See* Inc. Vill. of Bayville, 1991 N.Y. ENV LEXIS 16, at *16 (N.Y. Dep’t of Env’tl. Conservation Feb. 1, 1991).

23. CHU, *supra* note 5, at 4; *see also* DEC, *Long Island Aquifers*, *supra* note 4.

24. CHU, *supra* note 5, at 4.

25. *Id.*

26. *Id.* at 8.

27. EPA, *Brooklyn–Queens*, *supra* note 11.

28. Suffolk Cnty. Dep’t of Env’tl. Control, 1976 N.Y. ENV LEXIS 40, at *52 (N.Y. Dep’t of Env’tl. Conservation May 3, 1976).

29. CHU, *supra* note 5, at 7.

30. *Id.*

31. *Id.*

led to saltwater intrusion into portions of the Upper Glacial, Jameco, and Magothy.³² Saltwater intrusion is not an uncommon occurrence; it has affected “many of the coastal aquifers of the United States. . . .”³³

Saltwater intrusion is the process by which saline water enters into freshwater aquifers.³⁴ Under natural conditions, the movement of freshwater towards seawater prevents saltwater from intruding into coastal aquifers.³⁵ A number of factors control the extent to which saltwater is capable of intruding into a freshwater aquifer, including:

the total rate of groundwater that is withdrawn from an aquifer compared to the total freshwater recharge to the aquifer; the distance between the locations of groundwater discharge—such as pumpage from wells and drainage to canals—and the source (or sources) of saltwater; the geologic structure of an aquifer or aquifer system (including structural features such as faults, folds, and bounding submarine canyons); the distribution of hydraulic properties of an aquifer (including the interconnectivity of coarse-grained units within multi-layered aquifer systems); and the presence of confining units that may prevent saltwater from moving vertically toward or within the aquifer.³⁶

Saltwater intrusion “has resulted in the closure of many groundwater supply wells.”³⁷

On July 12, 2012, at least one concerned citizen wrote an anonymous editorial in a local community newspaper regarding saltwater intrusion on Long Island. The editorial expresses concern over the diminishment and pollution of the Long Island aquifer system; the author believes that “state, county[,] and local governments should enact a management plan to oversee the

32. *Town of Hempstead v. Flacke*, 441 N.Y.S.2d 487, 488 (N.Y. App. Div. 1981).

33. Paul M. Barlow & Eric G. Reichard, *Saltwater Intrusion in Coastal Regions of North America*, 18 *HYDROGEOLOGY J.* 247, 247 (2010).

34. *Id.*

35. *Saltwater Intrusion*, U.S. GEOLOGICAL SURVEY, <http://water.usgs.gov/ogw/gwrp/saltwater/salt.html> (last visited Mar. 12, 2012).

36. Barlow & Reichard, *supra* note 33, at 249.

37. *Id.* at 247.

Island's 57 municipal and 61 privately owned water suppliers.”³⁸ The author feels that a management plan would mitigate the dangers of saltwater intrusion by ensuring that the aquifers could be recharged at a rate that might prevent saltwater intrusion.³⁹ Over 1,150 people viewed the editorial, which indicates that saltwater intrusion is on the minds of Long Island citizens.

III. THE LLOYD AQUIFER MORATORIUM

A. History

The Long Island aquifers are facing many problems.⁴⁰ The majority of these problems directly relate to the increasing amount of people who live there and how they use the water resources and land.⁴¹ For instance:

[r]echarge to the aquifers has decreased due to the paving of streets and parking lots, the construction of buildings all on land which was once open and allowed precipitation to permeate downward to the aquifers and the increased sewerage of municipalities on Long Island whereby water withdrawn from the ground is ultimately discharged to the sea and not back into the aquifers.⁴²

This decreased recharge, combined with the increased pumpage due to population increases, has “resulted in saltwater intrusion into the glacial[] Jameco and Magothy aquifers under the southernmost portion of the Island in Nassau County.”⁴³ The saltwater intrusion into the Lloyd Aquifer is being maintained along the southern portion of the barrier beach.⁴⁴

38. Editorial, *Saving L.I.'s Aquifers—and Ourselves*, LI HERALD.COM, July 12, 2012, http://www.liherald.com/stories/Saving-LIs-aquifers-andourselves,42040?page=1&content_source=.

39. *Id.*

40. See Town of Hempstead Roosevelt Field Water Dist., 1981 N.Y. ENV LEXIS 10, at *13 (Dep't of Env'tl. Conservation May 1, 1981).

41. See *id.*

42. *Id.*

43. *Id.*

44. See *id.* at *13-14.

The Lloyd Aquifer is the sole water supply source for the Long Beach, Lido Beach, and Point Lookout communities.⁴⁵ The New York State Department of Environmental Conservation (Department) believes “it is likely that major increased withdrawals from the Lloyd Aquifer could cause the saltwater/freshwater interface to move shoreward, thus placing the water supply of the barrier beach communities in jeopardy.”⁴⁶ Many coastal region communities in North America are “taking actions to manage and prevent saltwater intrusion to ensure a sustainable source of groundwater for the future.”⁴⁷

On August 2, 1986, the New York State Legislature, composed of the Senate and Assembly, enacted Section 15-1528 of the New York State Environmental Conservation Law.⁴⁸ The purpose of the act was to “further those policies that are designed to conserve, protect, and manage the waters of the state.”⁴⁹ The legislature found Long Island to be an area that requires special attention due to specific needs.⁵⁰ Since the underlying aquifer system is the only source of water for over three million people and the aquifer system is highly sensitive to pollution and excessive water withdrawals, the legislature concluded that “certain limitations in the use of portions of the aquifer are necessary in order to ensure the long term quality and quantity of the water supply.”⁵¹

The statute enacted in 1986, § 15-1528 Moratorium on the Drilling of New Wells in the Lloyd Sands, established a moratorium on the “granting of new permits to drill public water supply, private water supply[,] or industrial wells into the Lloyd Sands[,] or to permit new withdrawals of water from the Lloyd Sands.”⁵² The moratorium applies “to all areas that are not coastal communities.”⁵³ The moratorium requires the

45. *See id.* at *14.

46. *Id.*

47. Barlow & Reichard, *supra* note 33, at 247.

48. *See* 1986 N.Y. Laws 3039-40.

49. *Id.*

50. *See id.*

51. *Id.*

52. 1986 N.Y. Laws 3040.

53. *Id.*

Department to identify which areas on Long Island are to be considered "coastal communities."⁵⁴ A separate statute, § 15-1502(1), defines coastal communities as "those areas on Long Island where the Magothy Aquifer is either absent or contaminated with chlorides."⁵⁵ However, the statute enables the Commissioner of the Department to grant exemptions to non-coastal communities "upon a finding of just cause and extreme hardship."⁵⁶

The statute requires that an adjudicatory hearing be held and the Commissioner to be presented with findings prior to granting an exemption.⁵⁷ The applicant has the burden of proof to establish that either (1) the community is a coastal community, or (2) just cause and extreme hardship exists.⁵⁸ The 1986 moratorium did not place a ban on the storage or pumping of water into the Lloyd Aquifer.⁵⁹ The statute was amended in 2008 to include a ban on "the storage or pumping of water into the Lloyd Sands."⁶⁰ This prohibition applies to both coastal and non-coastal communities.⁶¹ The statute also clarified that the Commissioner could not grant an exemption to allow the pumping or storage of water into the Lloyd Aquifer.⁶²

The amendment was proposed because the New York City Department of Environmental Protection considered undergoing a demonstration test, which involved pumping 300 to 400 gallons of water per day into the Lloyd Aquifer.⁶³ The New York State

54. N.Y. ENVTL. CONSERV. LAW § 15-1528(1) (McKinney 1986) (amended 2008) (directing the Department "to identify those areas of Long Island within the counties of Kings, Queens, Nassau[,] and Suffolk which, for the purposes of this section, shall be considered coastal communities.").

55. N.Y. ENVTL. CONSERV. LAW § 15-1502(1) (McKinney 1986).

56. N.Y. ENVTL. CONSERV. LAW § 15-1528(4) (1986) (amended 2008).

57. *Id.*

58. N.Y. COMP. CODES R. & REGS. tit 6, § 624.9(b)(1) (2012).

59. *See* N.Y. ENVTL. CONSERV. LAW § 15-1528(1) (McKinney 1986).

60. N.Y. ENVTL. CONSERV. LAW § 15-1528(2) (McKinney 1986) (amended 2008).

61. *Id.*

62. N.Y. ENVTL. CONSERV. LAW § 15-1528(4) (McKinney 1986) (amended 2008).

63. Letter from Patricia A. Eddington, Licensed Clinical Soc. Worker, to David A. Paterson, Governor, (Sep. 11, 2008) *in* NY Bill Jacket, A.B. 2986, 234th Assem., Reg. Sess. (N.Y. 2007), at 4.

Assembly justified the amendment in a Sponsor's Memorandum by stating that:

[The test] will have two detrimental effects. First, the Lloyd Sands Aquifer is vulnerable to overuse and may leak especially when [it is] under pressure from additional thousands of gallons of water being pumped into it. Secondly, there are unforeseen chemical reactions that may take place when the aquifers pristine water is mixed with dissolved nutrients and bacteria from the treated surface water that will be pumped into the aquifer.⁶⁴

The amendment became effective on September 25, 2008.⁶⁵

Upon finding that sufficient research was conducted "to provide a sound working knowledge of the details, dynamics, water volume, and levels of safe withdrawal appropriate to maintain a safe quantity of Lloyd Sands water," the moratorium may be lifted upon a directive by the Commissioner.⁶⁶ However, a "workable program . . . that can properly administer a well permit program for the Lloyd Sands water" must also be found before the moratorium may be lifted.⁶⁷ The program must "take into account both the localized and regional aspects and implications of Lloyd Sands water withdrawals, with special attention given to the prevention of water contamination and salt water intrusion."⁶⁸ Additionally, the program must guarantee that the safe level of withdrawal from the aquifer is not exceeded.⁶⁹ There is no information to indicate that the Commissioner is considering lifting the moratorium, or that the New York State Legislature is considering repealing the moratorium.

64. A.B. 2986, 234th Assemb., Reg. Sess. (N.Y. 2007), *available at* http://assembly.state.ny.us/leg/?default_fld=&bn=A02986&term=2007&Summary=Y&Memo=Y.

65. N.Y. ENVTL. CONSERV. LAW § 15-1528 (McKinney 1986) (amended 2008).

66. N.Y. ENVTL. CONSERV. LAW § 15-1528(3) (McKinney 1986) (amended 2008).

67. *Id.*

68. *Id.*

69. *Id.*

B. Determining Community Status

The moratorium on “the granting of new permits to drill public water supply, private water supply[,] or industrial wells into the Lloyd Sands[,] or to permit new withdrawals of water from the Lloyd Sands” applies to “all areas that are not coastal communities.”⁷⁰ A coastal community is defined as an area on Long Island where the underlying Magothy Aquifer is either absent or contaminated with chlorides.⁷¹ The applicant has the burden of proof of demonstrating that it is a coastal community for the purposes of the moratorium.⁷²

The New York State Legislature has not defined the level of chlorides necessary for the Magothy Aquifer to be considered “contaminated with chlorides” for the purpose of an area being labeled a “coastal community.” A New York State Department of Health regulation sets the water quality standard for chloride at 250 milligrams/liter (mg/l).⁷³ This is the same as the limit established by the National Secondary Drinking Water Regulations.⁷⁴ Although the New York State Legislature does not specifically explain why the statute contains a chloride contamination factor, it appears that it is in place mainly for acceptable drinking water quality standards. Once a certain chloride level—250 mg/l—has been reached in a water supply, the reasonable, average consumer would find the water unpleasing and would not want to use the water for household and drinking purposes.

It is generally accepted that the background or pristine Magothy Aquifer chloride concentration is less than 10 mg/l.⁷⁵ Although chloride levels of approximately 22 mg/l have been detected in the Magothy Aquifer,⁷⁶ this value falls well below the

70. N.Y. ENVTL. CONSERV. LAW § 15-1528(2) (McKinney 1986) (amended 2008).

71. N.Y. ENVTL. CONSERV. LAW § 15-1502(1) (McKinney 1986).

72. N.Y. COMP. CODES R. & REGS. tit. 6, § 624.9(b)(1) (2012).

73. N.Y. COMP. CODES R. & REGS. tit. 10, § 170.4(5) (2012).

74. 40 C.F.R. § 143.3 (2012).

75. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *10 (Dep’t of Env’tl. Conservation May 7, 2007), *available at* <http://www.dec.ny.gov/hearings/33418.html>.

76. *Id.*

standard set forth by the Department of Health and the federal statute. Regardless of the concentration found, Administrative Law Judge Maria E. Villa concluded that the 250 mg/l standard set by the Department of Health regulations and the federal statute is not controlling in determining the level required for contamination.⁷⁷ She arrived at this conclusion by stating that:

[i]n enacting the Lloyd moratorium, the Legislature did not impose a numerical limit on chloride levels in order to establish contamination. This lack of specificity compels the conclusion that the Legislature intended the Department to exercise its discretion, and arrive at a reasonable, case by case interpretation of the term “contaminated with chlorides.” This interpretation must consider the unique circumstances of each application, which can be developed in an adjudicatory hearing, as was the case here, in order to provide the Commissioner with a complete factual record.⁷⁸

Also, although the Magothy Aquifer chloride concentration is above what is generally accepted as pristine or background, “[t]he statute does not require that chloride levels be merely detectable or measurable; rather, the Legislature chose to use the word ‘contaminated.’”⁷⁹ This leads to the conclusion that a Magothy Aquifer chloride concentration of 22 mg/l is not sufficient to be considered contaminated for the purposes of being declared a “coastal community.”

Whatever level of chloride concentration is necessary to be considered contaminated for the purposes of ECL § 15-1502(1),⁸⁰ the argument has been raised that the cause of the contamination must be attributed to saltwater intrusion.⁸¹ In 2004, the Suffolk County Water Authority (SCWA) applied for a permit to install a Lloyd Aquifer public water supply well in the Town of

77. *See id.* at *38; *see also* 40 C.F.R. § 143.1 (2012) (“The regulations are not Federally enforceable but are intended as guidelines for the States.”).

78. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *38 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

79. *Id.*

80. N.Y. ENVTL. CONSERV. LAW § 15-1502(1) (McKinney 1986).

81. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *19 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

Huntington, Suffolk County, New York.⁸² Nassau County—along with the Nassau County League of Women Voters, the League of Women Voters of Suffolk County, the North Shore Land Alliance, the East Norwich Civic Association, the Sierra Club, the Long Island Drinking Water Coalition, the Conservation Board of the Village of Lloyd Harbor, the Huntington League of Women Voters, Residents for a More Beautiful Port Washington, and Friends of the Bay—opposed the permit application.⁸³

The County of Nassau asserted “that the legislative history of the moratorium statute demonstrates that the Legislature’s use of the term ‘contaminated with chlorides’ in Section 15-1502(1) referred to saltwater intrusion.”⁸⁴ It appears that the County took this position due to the similarities between the Honorable May W. Newburger’s letter and the definition of coastal communities found at ECL § 15-1502(1). Ms. Newburger, sponsor of the Lloyd moratorium legislation, stated that coastal communities are dependent on the Lloyd Aquifer because of the absence of the Magothy Aquifer or the intrusion of saltwater into the Magothy Aquifer.⁸⁵ The County also cited a Second Department decision involving the denial of a permit application to deepen an existing well in the Magothy Aquifer into the Lloyd Aquifer, which repeatedly references saltwater intrusion.⁸⁶

Administrative Law Judge Villa held that the County’s interpretation—that chloride contamination must be due to saltwater intrusion instead of low, background levels of chloride—is too narrow.⁸⁷ She stated that although the statute’s legislative history and the Second Department’s decision demonstrate a clear concern regarding saltwater intrusion, “the term ‘saltwater intrusion’ was not incorporated in the statute

82. Suffolk Cnty. Water Auth., 2005 N.Y. ENV LEXIS 64, at *1 (N.Y. Dep’t of Env’tl. Conservation Nov. 9, 2005), *available at* <http://www.dec.ny.gov/hearings/11881.html>.

83. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *7 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

84. *Id.* at *19.

85. *Id.* at *19-20.

86. *Id.* at *18-19 (citing *Town of Hempstead v. Flacke*, 441 N.Y.S.2d 487 (N.Y. App. Div. 1981)).

87. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *21 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

itself, and as a result, the legislative intent to limit the meaning of chloride contamination to saltwater intrusion is not express.”⁸⁸ Therefore, “the statute can be fairly read to refer to chloride contamination from both saltwater intrusion as well as land use activities.”⁸⁹

As previously stated, the New York State Environmental Conservation Law’s definition of “coastal community” includes an area on Long Island where the underlying Magothy Aquifer is absent.⁹⁰ Although the Magothy Aquifer underlies nearly all of Long Island, there are areas “where it has been removed by erosion and glacial scour.”⁹¹ These areas include “parts of western and northern Kings and Queens Counties, northern Nassau County, and northwestern and northeastern Suffolk County.”⁹²

C. Demonstrating Just Cause and Extreme Hardship

The Commissioner of the Department has the statutory authority to grant non-coastal communities an exemption to drill a well into the Lloyd Aquifer or to permit new withdrawals of water.⁹³ This exemption is based upon the Commissioner finding “just cause and extreme hardship” after an adjudicatory hearing is held.⁹⁴ Neither of the phrases “just cause” nor “extreme hardship” are statutorily defined in the context of the moratorium.

The Department has taken the position that the task of interpreting the terms “just cause” and “extreme hardship” is left to the discretion of the Commissioner due to the lack of guidance

88. *Id.* at *21-22.

89. *Id.*

90. N.Y. ENVTL. CONSERV. LAW § 15-1502(1) (McKinney 1986).

91. JACK MONTI, JR. & RONALD BUSCIOLANO, U.S. GEOLOGICAL SURVEY, WATER-TABLE AND POTENTIOMETRIC-SURFACE ALTITUDES IN THE UPPER GLACIAL, MAGOTHY, AND LLOYD AQUIFERS BENEATH LONG ISLAND, NEW YORK, MARCH-APRIL 2006 (2009), available at http://pubs.usgs.gov/sim/3066/pdf/Monti_SIM_3066.pdf.

92. *Id.*

93. See N.Y. ENVTL. CONSERV. LAW § 15-1528(4) (McKinney 1986) (amended 2008).

94. See *id.*

or policy.⁹⁵ The applicant has the burden of proof of demonstrating that “just cause and extreme hardship” exists.⁹⁶ SCWA applied for the first exemption to the statutory moratorium, which was deemed complete on March 15, 2004.⁹⁷ SCWA contended that their situation met the “just cause and extreme hardship” standard due to a nitrate contamination of their well,⁹⁸ but the Commissioner disagreed.⁹⁹

The SCWA proceeding presented the first opportunity for the Department to interpret the standard.¹⁰⁰ In 2007, Commissioner Alexander B. Grannis stated that “[o]n its face and by a plain reading of the unambiguous statutory language, ‘just cause and extreme hardship’ establishes a stringent requirement that can only be met in extraordinary circumstances.”¹⁰¹ Commissioner Grannis then referred to the testimony of Ms. Neuberger in which she testified to the intended meaning of “extreme hardship” stating:

The ‘extreme hardship’ wording was our way of saying that an extreme condition, an emergency, or some unexpected condition must have arisen that put the water system at serious risk, requiring an immediate response and the Lloyd [Sands] Aquifer was the only way out. Many water systems have what they would consider difficult challenges from time to time. But, they focus their resources and talents and a solution is developed. We wanted the moratorium to be lifted only in the most serious circumstances.¹⁰²

95. *See* Suffolk Cnty. Water Auth., 2005 N.Y. ENV LEXIS 64, at *26-27 (N.Y. Dep’t of Env’tl. Conservation Nov. 9, 2005).

96. *See* N.Y. COMP. CODES R. & REGS. tit 6, § 624.9(b)(1) (2011); N.Y. ENVTL. CONSERV. LAW § 15-1528(4) (McKinney 1986) (amended 2008).

97. *See* Suffolk Cnty. Water Auth., 2005 N.Y. ENV LEXIS 64, at *6, *26 (N.Y. Dep’t of Env’tl. Conservation Nov. 9, 2005).

98. *See* Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *13 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

99. *See* Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 69, at *41 (N.Y. Dep’t of Env’tl. Conservation Oct. 18, 2007), *available at* <http://www.dec.ny.gov/hearings/39263.html>.

100. *See id.* at *18.

101. *Id.*

102. *Id.*

Based upon the plain meaning of the stringent phrase, the legislative intent to be protective of the Lloyd Aquifer, and “the limited nature of the Lloyd Sands’ water resources,” Commissioner Grannis determined that “an extreme condition or emergency” must be demonstrated in order to fulfill the “just cause and extreme hardship” standard.¹⁰³

In the Issues Ruling for the SCWA permit application, Judge Villa identified three criteria for determining whether the “just cause and extreme hardship” standard has been satisfied.¹⁰⁴ These criteria include: the existence of an extreme water supply condition or emergency, the environmental impacts on the Lloyd Aquifer, and the availability of alternatives to the proposed withdrawal.¹⁰⁵ Commissioner Grannis approved of these criteria by stating that they are relevant in determining whether the “high standard of establishing ‘just cause and extreme hardship’” has been met.¹⁰⁶ However, despite these attempts to interpret the moratorium, the statute remains ambiguous.

IV. ANALYSIS

A. Terms of the Lloyd Aquifer Moratorium

Due to the ambiguity of the Lloyd Aquifer moratorium, the Department has a vast amount of power and discretion in reviewing permit applications. Many terms of the moratorium—and related statutes—have been left undefined, thereby committed to the discretion of the Commissioner.¹⁰⁷ In the twenty-five years since the original moratorium’s enactment, the Department has issued only one permit for a community to drill a

103. *See id.* at *22.

104. *See* Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *39 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

105. *See id.*

106. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 69, at *22 (N.Y. Dep’t of Env’tl. Conservation Oct. 18, 2007).

107. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *38 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007); *see also* Suffolk Cnty. Water Auth., 2005 N.Y. ENV LEXIS 64, at *27-28 (N.Y. Dep’t of Env’tl. Conservation Nov. 9, 2005).

new well into the Lloyd Aquifer.¹⁰⁸ Long Beach in Nassau County, New York was issued a permit under “the state’s coastal communities guidelines.”¹⁰⁹ Long Beach is considered a coastal community because the Magothy Aquifer formation beneath the city is contaminated with chloride from saltwater intrusion.¹¹⁰ There has never been a permit granted under the “just cause and extreme hardship” exemption, and the Department has only considered granting an exemption once.¹¹¹

The first ambiguous phrase in the moratorium is “coastal community.” The least burdensome way through which an applicant may be granted a permit for drilling a well into the Lloyd Aquifer is for the proposed site to be identified as a coastal community because this would render it not subject to the moratorium. Although a related statute defines “coastal community” as an area on Long Island where the Magothy Aquifer is not present or the underlying Magothy Aquifer is contaminated with chlorides,¹¹² it fails to define the level necessary for being declared “contaminated with chlorides.” The only guidance that has been given regarding this requirement is that the 250 mg/l standard set by the Department of Health regulations and the National Secondary Drinking Water Regulations are not controlling authority in determining the level required for contamination.¹¹³ Judge Villa has said that the Commissioner should interpret the term “contaminated with chlorides” on a case-by-case basis.¹¹⁴

108. SETH FORMAN, LONG ISLAND REG’L PLANNING COUNCIL, GROUNDWATER: TAPPING THE LLOYD AQUIFER 1 (2006), *available at* <http://www.suffolkcountyny.gov/Departments/Planning/Boards/LongIslandRegionalPlanningCouncil.aspx>.

109. *Id.*

110. SACCARDI & SCHIFF, INC., CITY OF LONG BEACH DEP’T OF PUB. WORKS, DRAFT LOCAL WATERFRONT REVITALIZATION PROGRAM: ENVIRONMENTAL RESOURCES C-8 (2007), *available at* <http://www.longbeachny.org/vertical/Sites/%7BC3C1054A-3D3A-41B3-8896-814D00B86D2A%7D/uploads/%7BA071434D-4F1A-435E-B7BD-434FD5DEDC9B%7D.pdf>.

111. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 69, at *2 (N.Y. Dep’t of Env’tl. Conservation Oct. 18, 2007).

112. N.Y. ENVTL. CONSERV. LAW § 15-1502(1) (McKinney 1986).

113. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *38 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

114. *Id.*

This level of discretion creates an impossible standard to meet since the Commissioner has not explicitly stated what level of chloride concentration is necessary to be considered contaminated. Three public-supply wells tested in the Lloyd Aquifer “had chloride concentrations that exceeded the State MCL (maximum contaminant level, 250 mg/L for chloride) and were shut down as a result.”¹¹⁵ The chloride concentration in these wells is unknown beyond the fact that they surpassed 250 mg/l, so even that example does not shed much light on this ambiguous term. In order to remain consistent—and therefore credible and reliable—the Commissioner should not interpret the standard on a case-by-case basis. By defining “contaminated with chlorides” as exceeding 250 mg/l, the ambiguity would be removed from this portion of the statute. This would also be consistent with the level set by the New York State Department of Health.¹¹⁶ The source of the chloride contamination is irrelevant, although saltwater intrusion will be the likely cause.¹¹⁷

It appears that declaring and publicizing a chloride concentration standard is a nationwide issue; New York is not the only state with a vague chloride contamination standard. The majority of state environmental agencies do not publicize the maximum chloride concentration allowed before a public water supply well will be shutdown. In contrast, the U.S. Geological Survey has routinely produced reports that cite 250 mg/l as the maximum contaminant level for chloride.¹¹⁸ Why the federal government promotes an established standard while state governments do not is unclear.

The second ambiguous phrase in the statute is “just cause and extreme hardship.” Per the moratorium, a non-coastal

115. FREDERICK STUMM, U.S. GEOLOGICAL SURVEY, HYDROGEOLOGY AND EXTENT OF SALTWATER INTRUSION OF THE GREAT NECK PENINSULA, GREAT NECK, LONG ISLAND, NEW YORK 31-32 (2001), *available at* <http://ny.water.usgs.gov/pubs/wri/wri994280/wri99-4280.pdf>.

116. N.Y. COMP. CODES R. & REGS. tit. 10, § 170.4 (2011).

117. *See* Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *21-22 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

118. *See* GREGORY S. CHERRY ET AL., U.S. GEOLOGICAL SURVEY, GROUNDWATER CONDITIONS IN THE BRUNSWICK–GLYNN COUNTY AREA, GEORGIA 2009, 42 (2011), *available at* <http://pubs.usgs.gov/sir/2011/5087/pdf/sir2011-5087.pdf>; STUMM, *supra* note 115, at 32.

community may only be granted an exemption from the ban upon a finding of “just cause and extreme hardship.”¹¹⁹ The “just cause and extreme hardship” requirement is the most difficult burden to overcome for a non-coastal community seeking an exemption from the Lloyd Moratorium. This is the most ambiguous phrase in the statute because of the complete lack of definitive guidance. Although the Department’s first and only occasion to interpret the standard failed to specifically define it, Judge Villa identified three criteria for determining whether the standard has been satisfied: existence of an extreme water supply condition or emergency, the environmental impacts on the Lloyd Aquifer, and the availability of alternatives to the proposed withdrawal.¹²⁰

In 2007, Commissioner Grannis agreed with the first criterion that “an extreme condition or emergency” must be demonstrated in order to fulfill the “just cause and extreme hardship standard.”¹²¹ What exactly does the existence of an extreme water supply condition or emergency entail? The Department has not provided the answer to this question, but Commissioner Grannis has stated that it is a “very high threshold.”¹²² The only guidance that has been released from the Department regarding this criterion is (1) nitrate contamination does not meet the threshold since nitrates can be treated and removed, (2) concerns of meeting high demand periods are insufficient, and (3) alternatives that are “*potentially* available to meet the projected demand” invalidate having to drill into the Lloyd Aquifer.¹²³

If the Department were to give an example of “an extreme condition or emergency,” this alone would be insufficient to clarify the ambiguity. A mere example would not help non-coastal communities determine whether they qualify for the exemption. The Department should explicitly state a list of factors that would

119. N.Y. ENVTL. CONSERV. LAW § 15-1528(4) (McKinney 1986) (amended 2008).

120. See Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 12, at *39-40 (N.Y. Dep’t of Env’tl. Conservation May 7, 2007).

121. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 69, at *22 (N.Y. Dep’t of Env’tl. Conservation Oct. 18, 2007).

122. *Id.* at *4.

123. *Id.* at *23 (emphasis added).

be used in determining whether “an extreme condition or emergency” exists. It is easy to imagine that one factor would involve a condition that is detrimental, or even potentially lethal, to the users of that water supply. This could be met by the extreme contamination of a water supply by a toxic chemical or metal, such as mercury or perchlorate. A second factor could state that a remediation system is unavailable to restore the water supply to a safe level. A third factor could state that no reasonable alternative is available to draw upon as a water supply.

Judge Villa’s second criterion—environmental impacts of the proposed well on the Lloyd Aquifer—is also supported by Commissioner Grannis.¹²⁴ During his 2007 interpretation of this factor, he heavily emphasized the importance of adequately demonstrating “safe yield.”¹²⁵ The Department defines “safe yield” as “the constant pumping rate at which the wells achieve and maintain equilibrium.”¹²⁶ ECL § 15-1527 outlines another environmental impact that the Commissioner requires be addressed: “[F]or a public water supply well on Long Island it shall be determined ‘whether the watershed, which in the case of Long Island shall mean the land surface that represents the recharge catchment area recharging water for each respective well, has been adequately protected.’”¹²⁷ Although these are the only two environmental impacts that the Commissioner spoke to in his final decision, they are by no means the only ones to address in a permit application seeking an exemption.

The availability of alternatives to the proposed withdrawal is the third relevant criterion in establishing “just cause and extreme hardship.” In order to justify lifting the exemption through demonstrating “just cause and extreme hardship,” a full evaluation of the alternatives to the proposed withdrawal is

124. *See id.* at *24.

125. *See id.* at *24-27.

126. Crossroads Ventures, 2005 N.Y. ENV LEXIS 53, at *79 (N.Y. Dep’t of Env’tl. Conservation Sept. 7, 2005), *available at* <http://www.dec.ny.gov/hearings/11135.html>.

127. Suffolk Cnty. Water Auth., 2007 N.Y. ENV LEXIS 69, at *27 (N.Y. Dep’t of Env’tl. Conservation Oct. 18, 2007).

required.¹²⁸ This evaluation must “lead to the conclusion that there is no acceptable alternative.”¹²⁹ In evaluating the availability of alternatives, Commissioner Grannis assessed the following factors: total costs, space requirements, environmental impacts, visual impacts, and difficulties with respect to installation.¹³⁰ Visual impact concerns do not hold a lot of weight in the evaluation since they can be dealt with through construction design.¹³¹ In regards to the total cost factor, there must be a showing that the potential alternatives would create a “significant economic burden.”¹³²

The financial burden element appears in another New York moratorium. The Department has promulgated a regulation declaring that “[n]o person shall alter the state of any tidal wetland or adjacent area prior to the effective date of the land-use regulations adopted by the commissioner pursuant to the act unless such person has submitted a petition and has obtained a moratorium permit for such alteration from the department.”¹³³ A petition to obtain a moratorium permit must “set forth with particularity the hardship . . . the petitioner”¹³⁴ will suffer “if the moratorium permit is not issued.”¹³⁵ Hardship is defined as “a condition unique and peculiar to the particular situation of the petitioner, which tends to impose a serious financial burden on the petitioner.”¹³⁶ The Department demonstrates consistency in this regard.

B. Northrop-Grumman Facility in Bethpage, Long Island

The Northrop-Grumman facility in the Town of Oyster Bay, Bethpage, New York is situated upon groundwater contaminated by their own making. The facility is 605 acres, which includes a 105-acre Naval Weapons Industrial Reserve Plant that is

128. *See id.* at *28.

129. *Id.* at *28-29.

130. *See id.* at *29-35.

131. *See id.* at *30.

132. *See id.* at *34.

133. N.Y. COMP. CODES R. & REGS. tit 6, § 660.2 (2011).

134. *Id.* § 660.3(a).

135. *Id.* § 660.5(a).

136. *Id.* § 660.1(h).

government-owned and contractor-operated.¹³⁷ Over the years, “activities conducted at the facility included engineering, administrative, research and development, and testing operations, as well as manufacturing operations for the Navy and the National Aeronautics and Space Administration (NASA).”¹³⁸ These activities involved the use of volatile organic compounds (VOCs) (including vinyl chloride, dichloroethylene, trichloroethylene, and tetrachlorethylene) and hexavalent chromium (chromium-6).¹³⁹

VOCs can cause a wide array of health effects in humans. VOCs are a chemical class of organic compounds that evaporate easily.¹⁴⁰ The nature and extent of the health effects are dependent on many factors, including the length and the extent of exposure.¹⁴¹ According to the EPA, the following health effects are possible from exposure to VOCs:

Eye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans. Key signs or symptoms associated with exposure to VOCs include conjunctival irritation, nose and throat discomfort, headache, allergic skin reaction, dyspnea, declines in serum cholinesterase levels, nausea, emesis, epistaxis, fatigue, dizziness.¹⁴²

The EPA is currently studying the health effects associated with exposure to chromium-6.

Presently, EPA regulates chromium-6 in drinking water as part of the total chromium standard. In September 2010, after new science on chromium-6 was discovered as part of the routine

137. EPA, NORTHROP GRUMMAN CORPORATION, <http://www.epa.gov/region2/waste/fsgrumm.htm> (last visited Mar. 28, 2012) [hereinafter *EPA, Northrup*].

138. *Id.*

139. *Id.*

140. AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, TOXIC SUBSTANCES PORTAL: VOLATILE ORGANIC COMPOUNDS, <http://www.atsdr.cdc.gov/substances/toxchemicallisting.asp?sysid=7> (last visited Mar. 25, 2012).

141. EPA, AN INTRODUCTION TO INDOOR AIR QUALITY (IAQ); VOLATILE ORGANIC COMPOUNDS (VOCs), <http://www.epa.gov/iaq/voc.html> (last visited Mar. 24, 2012).

142. *Id.*

re-evaluation of drinking water standards, EPA released a draft risk human health assessment for chromium-6 for public comment.¹⁴³ In this draft, EPA proposed classifying “chromium-6 as likely to be carcinogenic to humans via ingestion.”¹⁴⁴ In May 2011, an external peer review panel met and based on the recommendations from this panel, EPA:

will consider the results of recently and soon to be completed peer-reviewed primary research on the chemical before finalizing the IRIS assessment. The oral assessment will be revised to address the peer review comments and combined with the inhalation assessment, which is currently in draft development. EPA anticipates that the draft assessment for hexavalent chromium (oral and inhalation) will be released for public comment and external peer review in 2013.¹⁴⁵

It will be interesting to see whether the chromium-6 assessment will affect future drinking water standards and regulations.

Originating from the Northrop-Grumman facility, an approximately 3000-acre groundwater plume—containing volatile organic compounds and chromium—reaches to depths of 750 feet below the surface level in some areas.¹⁴⁶ Multiple Bethpage Water District well fields have been affected by the contaminated groundwater.¹⁴⁷ Furthermore, the Aqua New York well field has recently been impacted, leading to the increase of trichloroethylene in the well field.¹⁴⁸

Remediation efforts are underway to contain and mitigate the contamination. Beginning in 1998, “Northrop Grumman installed and operates an Onsite Containment System (ONCT), located on the southern side of the former Grumman and Navy site to help control off-site migration of contaminated

143. EPA, BASIC INFORMATION ABOUT CHROMIUM IN DRINKING WATER, <http://water.epa.gov/drink/contaminants/basicinformation/chromium.cfm#three> (last visited Mar. 25, 2012).

144. *Id.*

145. EPA, IRIS TOXICOLOGICAL REVIEW OF HEXAVALENT CHROMIUM (EXTERNAL REVIEW DRAFT), http://cfpub.epa.gov/ncea/iris_drafts/recordisplay.cfm?deid=221433 (last visited Mar. 25, 2012).

146. EPA, *Northrup*, *supra* note 137.

147. *Id.*

148. *Id.*

groundwater that is within site boundaries.”¹⁴⁹ The ONCT, which is a “network of groundwater extraction wells,”¹⁵⁰ is removing a substantial amount of the contamination; however, questions have been raised concerning the effectiveness of the system for the deeper portions of the Magothy Aquifer.¹⁵¹ As a result of these concerns, the Navy has committed itself to constructing extra deep profile borings—expected to begin in April 2012—at the ONCT in order to determine whether deep contamination may be occurring that has not yet been identified.¹⁵²

Water districts located in the path of the plume, including Massapequa, “called for full containment of the groundwater contaminant plume as the preferred remedy or, ‘at a minimum, interception of contamination before it impacts down gradient public supply wells.’”¹⁵³ The Department explained that the extent of the contamination did not require full plume containment because it was neither cost-effective nor technically feasible.¹⁵⁴ The Massapequa Water District continues to argue that groundwater remediation is a cheaper and more protective alternative to wellhead treatment.¹⁵⁵

In 2009, Northrop Grumman installed a containment system at the southern boundary of Bethpage Park, which has been operating as an interim measure.¹⁵⁶ The performance of this system has not been fully evaluated so it is too early to know the full effects of this effort.¹⁵⁷ In addition to the southern boundary of Bethpage Park containment system and ONCT at the southern

149. *Id.*

150. LENNY SIEGEL, CTR. FOR PUB. ENVTL. OVERSIGHT, *THE LIMITATION OF WELLHEAD TREATMENT BETHPAGE AND MASSAPEQUA, LONG ISLAND, NEW YORK* (2011), available at <http://www.cpeo.org/pubs/Bethpage.pdf> [hereinafter SIEGEL, WELLHEAD].

151. *EPA, Northrup, supra* note 137.

152. *Id.*

153. SIEGEL, WELLHEAD, *supra* note 150 (quoting N.Y. STATE DEP’T OF ENVTL. CONSERVATION: DIV. OF ENVTL. REMEDIATION, RECORD OF DECISION, OPERABLE UNIT 2 GROUNDWATER, NORTHROP GRUMMAN AND NAVAL WEAPONS INDUSTRIAL RESERVE PLANT SITES, NASSAU COUNTY, SITE NUMBERS 1-30-003A & B 63 (2001).

154. *Id.*

155. *Id.*

156. *EPA, Northrup, supra* note 137.

157. *Id.*

edge of the Grumman and Navy site, the Navy constructed an “off-site groundwater hot spot remediation system” to the southeast of the site.¹⁵⁸ Furthermore, thirteen homes have had Air Purifying Units installed, and six homes have had sub-slab depressurization systems installed.¹⁵⁹

As a possible alternative to the current remediation efforts, local water districts impacted by the groundwater contamination may seek permits to drill new wells into the uncontaminated Lloyd Aquifer. Neither the Massapequa Water District nor the Bethpage Water District provides service to coastal communities. The Magothy Aquifer is neither absent nor contaminated with chlorides in those communities. As a result of this classification, the only option left would be to obtain an exemption to the moratorium through satisfying the “just cause and extreme hardship” requirement.

It is highly unlikely that the water districts of Massapequa and Bethpage would be able to meet the “just cause and extreme hardship” exemption. The existence of an extreme water supply condition or emergency would undoubtedly not be satisfied when reviewed using the proposed factors listed above: potentially lethal contamination of a water supply by a toxic chemical or metal, a remediation system is unavailable to restore the water supply to a safe level, and no reasonable alternative is available to draw upon as a water supply. Although contamination of the districts’ water supplies by VOCs and chromium can create potentially lethal situations, a remediation system is currently being undertaken to restore the water to an acceptable, safe standard. Therefore, the chances of a permit being granted to drill into the Lloyd Aquifer are highly unlikely. The resources spent on pursuing an application would be better spent elsewhere.

V. CONCLUSION

New York State Department of Environmental Conservation needs to promulgate new regulations defining the ambiguous terms of the Lloyd Aquifer Moratorium. There are too many

¹⁵⁸. *Id.*

¹⁵⁹. *Id.*

undefined terms in the statute, which leaves an unsurpassable amount of discretion to the Commissioner. This in turn completely closes off access to the Lloyd Aquifer from non-coastal communities, even though the statute technically has a provision allowing for an exemption. In actuality, this provision serves no true purpose because the burden of satisfying the conditions required before being granted an exemption will likely never be met. If the Department or Commissioner were to release more guidance on the terms of ECL § 15-1528, communities on Long Island with polluted water supplies would have a higher likelihood of having access to unpolluted water.