

# Orchestrated Gasworks Residual & Waste Dumping in Western Long Island, New York

**Hatheway, Allen W., Ph.D., P. Geol., P.E.**

*Consulting Geological Engineer  
Rolla, Missouri 65401, U.S.A.*

**Janice Manzollilo, OTR, BS**

*State University of New York (formerly DownState Medical Center), Brooklyn, NY  
Resident & Concerned Citizen  
Bellmore, Long Island, 11710, U.S.A.*

**ABSTRACT:** Nearly every former gas manufacturing property contains at least one uncontrolled dumpsite of toxic wastes; additional former gas-utility sites were operated only as dumps. Manzollilo resides in her single-family-owned home (built in 1934), located immediately adjacent to an historic Long Island Lighting Company (LILCO) Horton Sphere Gasholder site. She has reasonable concerns for the personal health of her family. LILCO consolidated much of manufactured gas companies of western Long Island, then the remainder of the island, and required disposal sites for residuals and wastes.

## 1 INTRODUCTION

As the authors' approach a full year of dedicated research and evaluation, we are compelled to add this preface, in order that the reader gain a full appreciation of our motives and dedication to this self-assumed and unfunded duty to the environment and to the public of Long Island. It is our belief that the national situation of environmental legislation and environmental regulation has grown to place the public in a position of severe disadvantage, in term of gaining access to the actual historic technical and operational records of the manner in which gas-manufacturing residuals and wastes were generated, handled, managed, and discharged or otherwise disposed on an in the environment.

The junior author has lived for the past 19 years, with her family, adjacent to the historic Bellmore Gasholder Station, on Long Island. She originally took up her concern for gas-utility toxic waste threats as a result of the change in use of an older abandoned industrial property adjacent and south of her property.

The Harwein property was adjacent to the property of the Long Island Lighting Company which as of application of June 11, 1948 contained a "tremendous" 50 ft-diameter Horton Sphere, an electric sub-station, Lighting Company office, and a Power House.

As a result of being made aware of the Horton Sphere "clean-up" under way by the DEC in cooperation with KeySpan, through an article in the local paper Bellmore Life in the fall of 2007, Mrs. Manzollilo began a thorough citizen review of what might be the "true" nature of the otherwise innocuous presence of the Bellmore Horton Sphere. During her odyssey of agency contact, field observation and archival research, Manzollilo has applied all of the resources available to citizens who find themselves with reasoned, scientifically-rooted concerns for health and safety. Her concerns are rooted in the gray area between otherwise-declared agency "for-cause" attention and the statutory rights of the potential polluter to defend its own interests. This is a far-to-common situation in organized society, even in the most free of modern governmental societies.

Shortly after Hatheway became involved, he reviewed available NYS DEC remedial documentation and was struck with the general lack of discovery of on-site gasworks masses of disposed spent purification "box" wastes. This condition took on additional meaning when he discovered (personal comm. with Gardner W. Cross, NYSDEC, Aug, 2009) that DEC had experienced the same curious fact. The sole exception known to DEC, as of that time, was the 2008 remediation of dumped gasworks box wastes at Brentwood, L. I. On 10Sep, 2009, Hatheway was alerted, by environmental journalist Mark Harrington (*Newsday*) of the details of a DEC-supervised Immediate Remedial (removal) Action site, in the hamlet of Brentwood, Nassau County, of an apparent purifier box-waste dump site, from the NYS DEC Site Description. Importantly, we then knew that the earliest disclosed time-frame from the

dumping was 1944-1956 and that the spent purification media debris also contained SVOCs (herein taken to mean gas-manufacturing tars and light-oils). The presence of some gas tars in spent box waste is to be expected.

Both authors believe that the most contentious area of today's environmental remediation is that difficult arena of discourse between the property-affected, concerned citizen and the Responsible Party (RP).

## 2 OUR PREMISE

In dealing with Mrs. Manzollino's original family health-and-safety concern, it became apparent that the rapid and financially unhindered growth of the LILCO system came to be at and during the period in which Nassau and Suffolk Counties jumped from its (then) rural, pastoral nature, to a well-developed suburban bedroom region for New York City. Subsequently we learned of the history of LILCO's relentless consolidation of the original, smallish manufactured gas utilities that had served the largely farming and country estate residents of the Counties, and how the new Long Island rail system had knit the Long Island into a vast suburban development.

The assembled, circumstantial evidence for potential gasworks dumps, began to appear as we began to understand the obvious intertwining of transportation links and the conversion of rural real estate into new and expanded villages and towns, and the omnipotent presence of LILCO as the supplier of manufactured gas for the new amenities of 20<sup>th</sup> century suburbia; gas cooking and gas heating. We were aware of the traditional worldwide historical preoccupation of the manufactured gas industry with the daily need to address the need to manage each day's production of unwanted gas-manufacturing residuals and wastes (Table 1). We then began to note that LILCO seemed to have been acting ahead of the major subdivision redevelopments, by purchase of what appeared to be larger-than-required parcels of land, to support its expanding gas service to the new and expanding communities.

When we considered LILCO's corporate history, we then discovered that the company had bought up considerable gas-manufacturing and distribution companies in the westward band of Long Island formerly operating as Kings County and Queens County. This brought us to the fact that the newly-acquired gas manufacturing capacity of the two westward counties of Long Island also represented a truly huge burden of residual and waste management concerns for operational managers in the 1920s.

This brings us to the premise of this paper. That is, that LILCO's truly rapid expansion brought with it the need to manage emergent immense quantities of gashouse residuals and wastes. The potential connection between the waste generation flow and the oversized LILCO properties then began to take form.

## 3 GENERAL HISTORY of MANUFACTURED GAS on LONG ISLAND

The opening of two early major gas works on Long Island, the first in Sag Harbor, Suffolk County Long Island, 1864 and the second shortly after in Hempstead, Nassau County New York began the development and evolution of gas works into modern and centralized distribution of manufactured gas. In fact, Sag Harbor lies about 150 km east of Manhattan Island.

In the same year, about 120 km away in Hempstead, a group of merchants led by Seaman N. Snedeker (later to service twice as Town of Hempstead Supervisor and in between, president of the South Side Rail Road) had sold enough stock to build a small coal-gas plant on Clinton Street. On Jan. 23, 1860 the gas was turned on and service was offered from dawn to dusk.

The modern legacy of these gas works are two tremendous toxic sites. The Sag Harbor site, with local memory of the gasworks faded away, the consensus was that this simply was an innocuous Horton Sphere location. After its listing as a potential hazardous waste site, further exploration detected some 90 vertical feet of liquid coal tar contamination underneath the site. In addition, the surrounding land

Table 1: Typical Expected Gashouse Residuals & Wastes of Potential LILCO Gasworks Dump Sites

Name	Origin	General Conditions Dumping
Ammoniacal or Gas Liquors	Plant wastewater effluent	Generated at many points in the gas manufacturing process; some of its quantity could be reduced in toxicity by further treatment, for by-products or for recycling; often not the case, and hence, discharged after its accumulation.
Coke	Valued primary residual	Generally converted to a salable by-product immediately, or directly re-used as a feedstock to heat plant furnaces and boilers; not generally discarded, and, by nature inert unless exposed to other plant toxics, which it tended to sorb.
Tar	Major impurity removed from plant gas sold to consumers	Gas tar, of sufficient quality, had an intrinsic re-sale value to the chemical industry, both "fine" and "bulk." However, when its water content exceeded about four percent, the residual tars were either rejected by purchasers or subjected to deducted value associated with the need for dehydration. CWG tars often were in the form of tar-water emulsions and were rejected (when untreated at the gasworks) on nearly all occasions and were frequently dumped to the environment (generally after 1910).
Tar-Water Emulsions	Endemic Gas Industry Problem after About 1910	Characteristically produced in carbureted water gas sets when bituminous coal was substituted for traditional coke reactor feedstock, and/or crude or other heavy oils were substituted for the traditional tar light-oil carburetion (illumination enrichment) feedstock (See Parke, 1935)
Tar Sludges	Tar impurities gathered in the clarification and purification processes	Gathered in the sumps of several gasworks plant components generally known as condensers, washers, scrubbers, washer-scrubbers, tar extractors, tar separators, and purification boxes.
Spent Purification Media; AKA "Box Wastes"	Lime, wood chips, iron oxide particles or their admixtures	Solid physical substances of known sorption capacity useful in the final capture of impurities, such as cyanogens, sulfur compounds, heavy metals and gas tars. Purification was the final gas-manufacturing process, applied just prior to gasholder storage and subsequent distribution to the consumers. The media were usually employed on a one-time basis, then dumped, containing the trapped, toxic impurities. Very little potential existed for off-plant use as a by-product and, hence, enormous quantities have disappeared from historic accountability.
Inert Plant Solid Wastes	Mainly broken retort ceramics and gas generator fire bricks	Generally considered inert in terms of potential for releasing regulated hazardous constituents; in fact, these solids typically were dumped in irregular assemblages (piles) and represent considerable subsurface void spaces into which could be discharged off-specification tar residuals, as valueless plant wastes.

had been developed into homes and businesses. The responsibility for cleanup fell on the LILCO corporate successor, KeySpan. A record of the March 31, 2006 decision can be found on the DEC website which states that " The plant originally produced gas from coal or wood rosin and was switched to a water gas process in 1892. The by-products of gas production that either spilled, leaked, or were disposed on the site are responsible for the contamination."

At first, we directed our attention to manufactured gas plants that appeared in what truly was the rural portion of Long Island, that is east of the original counties of Kings and Queens (Table 2). Our emphasis was toward gaining an understanding of historic operational choices of the gasworks operators as to handling and management of their gas-manufacturing residuals and wastes. Later, we came to realize that the historic amalgamation of plants that took place under the aegis of LILCO, might well have led to eastward transport of gas plant debris from the older and larger gasworks, and that such hauling may have made use of the developing Long Island railroad network. It was at that point that we perceived of the dominant locational practice of LILCO properties (gas, electric, or service). Not only were the

properties selected at points along the railway and trolley system, but that many of the properties seem to have original acreage far in excess of what could normally be ascribed to space needs related directly to operations alleged to have taken place on those properties. At this point in the report we do wish to make clear that our main concern is that the regulatory process should be brought to bear on the problem of fugitive gashouse residuals and wastes, and not so much on how the wastes were transported from the gasworks of origin to the site of the known and postulated dumping.

#### 4 GAS INDUSTRY HISTORY of UNCONTROLLED GASWORKS DUMPING

Manufactured gas plants, as a consequence of their very existence, produced a constant and ongoing stream of toxic effluents. These unrecycled gas-house tars, and contaminated process waters (the latter, known generally as “ammoniacal liquor” (coal-gas plants or “gas liquors” (carburetted water gas plants, as well as being a common-use industry term after about 1900) (Table 1).

##### 4.1 *Example of the 59<sup>th</sup> Street Gas Works, Brooklyn*

The 59<sup>th</sup> Street (5912 Utrecht Ave.) gas works of the Kings County Gas Light Co. gasworks at 5912 New Utrecht Ave., Brooklyn, is an apt example of one of our major concerns for off-site dumping of gas manufacturing residuals and wastes. This gas works was established about 1889 and was in operation for about 15 years at the time LILCO was created. Historic images of that plant portray its confined nature, indicating that the plant operators likely were under real pressure to remove residuals and wastes that were accumulating beyond their local on-plant and near-vicinity, off-plant discharge and dumping grounds.

##### 4.2 *The Long-Standing Legal Aversion to Gas-House Dumping in New York State*

New York State has consistently led the nation in the historic recognition and legal aversion to the dumping and other open discharge of gas-house wastes to the environment. We cite herewith only a small example of this historic recognition. The reader, however, should be aware that, generally speaking, provisions of public law have not represented an outstanding historic deterrent to such dumping.

For example, as early as 1884, the laws of New York State were amended at Sec. 25, with a statute entitled “An act for the preservation of moose, wild deer, bird, fish, and other game” to provide that ““No person, association, company or corporation shall throw or deposit, or permit to be thrown or deposited, any dyestuff, coal tar, refuse from gas houses, sawdust, lime, or other deleterious substance, or cause the same to run or flow into or upon any of the rivers, lakes, ponds, streams, or any of the bays or inlets adjoining the Atlantic Ocean, within the limit of this State.” (cited in (1922, US PHS Bull. no. 87, Montgomery & Phelps, p. 109)

##### 4.3 *Gas-Plant Waste Management Practices of the Long Island Manufactured Gas Companies*

Sufficient historic evidence has been developed so as to typify at least some of the gashouse waste management practices of LILCO and other Long Island gas-manufacturing companies. In the course of the senior author’s co-authorship effort on a forthcoming technical paper (on the urban geology of greater New York City), Hatheway has learned of the long-term research efforts of Mr. Dan Walsh. Mr. Walsh, a Geologist, was, at some recent point in time, with the NY City Brownfield redevelopment effort, and is know for his expertise in the general subject of the greater NY City shoreline dumps. We are making effort to benefit from his studies.

Currently, we are operating with the general knowledge that the shorelines of the Hudson, Harlem and East Rivers are rife with thick toxic, to marginally toxic dumps of ash, cinder and all manner of gashouse wastes. This is a given fact, a well as that much of the former Barren’s Island (northern portion of Astoria and the general site of the great Astoria gas works [1911-1960] of the Consolidated Gas Co. (Consolidated Edison Co., by name, after 1934).

The authors do not have in mind to attempt to define the actual character of the widespread gasworks dumping west of the Nassau County line, rather to establish that the practice of dumping of gashouse re-

siduals and wastes was widespread, throughout greater New York City, from the very beginning of the industry (1823), through the first establishment of gasworks on Long Island (1856, both at College Point, Queens County and at Jamaica, King County), gives the potential for Kings and Queens County toxic shoreline dumping a very early starting time.

#### 4.4 *Why Dumping and Uncontrolled Discharges to the Environment?*

A manufactured gas plant operated continuously and around the clock, every day of the year. The need for continuous operation recognized the physical character of the original “gas machines,” which were coal-gas retorts. The retorts were fabricated at first of iron, then typically after about 1850, of ceramic castings. The controlling feature was that the retorts had to be maintained “in heat” constantly, in order to avoid the destructive effects (fracturing) of going “cold.” As coal gas began to be supplanted by carburetted water gas (generally after about 1885) the need for constant heat was somewhat reduced. Suffice to say that every day produced quantities of residuals and wastes that need “handling” and “management” actions, just to keep the gas yard free of physical encumbrances to continued operation.

For a given gasworks, the primary waste management option was to discharge liquid effluents to the ground. For solid and semi-solid wastes, the primary option was to create a dump around the down-slope fringes of the gas yard. These dumps typically are found in such areas of the original plant which were not dedicated to ongoing gas production, cleansing, storage and distribution activities. Typically the dumping was carried on to such a point in time that the entire site became surface-graded to facilitate runoff of rainfall and snowmelt.

Then the gas company looked for other generally unoccupied, low-value, irregular topography nearby (usually within about five urban blocks) and down-gradient dumping sites. All manner of depressions generally were sought, including those of a geologic nature (such as glacial kettles and limestone dissolution depressions), along with stream channels and sloughs and swamps (today’s “wetlands”). Also prized for gashouse-waste disposal were abandoned rock quarries, though these were in competition for municipal dumps at the same time.

### 5 OUR EVALUATION of the POSSIBLE SYSTEMATIC POLLUTION of LILCO SITES

LILCO’s basic operating premise appears to have been to consolidate and hold the gas service territory of those portions of Long Island lying outside the corporate bounds of New York City. LILCO’s own history has been recorded by one of its senior Vice Presidents, J. W. Carpenter, but even with this 1959 history, all of the subtleties of the ground held by LILCO, and of the ultimate usage and disposal of those properties has not been adequately addressed for the purpose of dealing with potential on-plant and off-plant discharge and dumping of gas- manufacturing residuals and wastes. In this sense, we believe that our paper now stands as the most complete research to date, as it attempts to define those considerations.

#### 5.1 *Our Research Methodology*

We have searched for basic information defining the physical presence of LILCO’s past activities and we herewith depict examples, using mainly segments of topographic maps, of all of the identified LILCO properties, showing their bounds and how the topography changed, and also with the subsequent development into residential, commercial, and park areas. In the conduct of our research, we have sought topographic indications of enough topographic contour information and alteration of historic drainage features, to support the notion gashouse dumping may have changed the topography visibly, in terms of the topographic map segments. We also have focused on the areal drainage network around the LILCO transferred properties, as may have been altered to accommodate the sell-off to the subsequent land use.

For basic LILCO property locations, we began with information released in the course of environmental compliance actions, then moved to the literature, where we found Professor J. J. Morgan’s 1953 map of LILCO gas plants and distribution properties. Following this degree of work, we moved to discover public land information, such as title records of land ownership, tax-roll maps of property bounds, and municipal and county records dealing with various building permits and permissions for land modifica-

tion. With this at hand, we then gathered and evaluated historic topographic maps, searching for indications of dump-modified landforms.

### 5.2 *Our Systematic Search for Most-Likely Dumping Grounds*

Given the senior author's long time research on actual FMGP sites and their typical historic technical and operational use patterns, the following scenarios generally indicate ground that should be considered essential for close attention to exploration and sampling for dumped gas-manufacturing residuals and wastes:

- 1) Presence of old drainage channels that were infilled with time (as with gasworks debris dumping);
- 2) Portions of gasworks properties that never were showed to have the active presence of gas-manufacturing buildings and other components, thus, equaling dump sites;
- 3) Marginal portions of any utility properties that fronted on drainage features, streams, lakes, ponds or swamps = dump sites, and;
- 4) Any utility properties that were increased in area, with time, and then, especially, sold off (after potential dumping).

Situations such as those note above are so simply reliable, in the face of actual national evidence, that such subsurface site characterization exploration and sampling should be demanded by public officials.

### 5.3 *Authors' Presentation of Combined Historic Site Evidence*

At present, it is our plan to present the combined Sanborn and U.S.G.S. topographical site evidence as a series of compare-and-contrast "inset" images, both Sanborn and topographic, showing what we have been able to discern about how LILCO chose to make physical use of each of the subject properties, and how that land-use changed with time, to include land uses that followed with the land when parcels were sold for further development or public use purposes.

### 5.4 *A Collection of Gasworks Dump Evidence for Greater New York City (to include Long Island)*

In assembling our presentation, that authors have felt that their "full disclosure" presentation of evidence should also include evidence of how historic gas plant owners and operators chose *discharge to the ground* (dumping) as a means of alleviating their pressing waste management needs. These examples were yesteryear's gasworks dumps, both at the gas yard and within nominal haul distances. We have assembled this evidence in our Table 5.

## 6 CONCLUSIONS

Based on our evidence, as presently assembled, we conclude that literally every property purchased by LILCO, from its incorporation in 1910, through its expansion into the Great Depression (1929) represents a potential gasworks dump of toxic contaminants. It is our tentative finding that the entire program of LILCO property expansion was cloaked in the more obvious opportunities to serve the expanding suburbia, but, at the same time, also, to provide for dumping grounds for gashouse residuals and wastes generated since LILCO's creation in 1914, and, then ongoing, to include the gas plants then in operation in the Counties of Kings, Queens, Nassau and Suffolk. We further believe that as those portions of the LILCO property acquisitions were dumped to their full potential, that final grading was achieved and the properties largely were sold to developers, for residential subdivisions. Some of the properties, on the other hand, appear to have been retained for longer periods of time, and may have been subjected to gashouse dumping well into the 1950s, and then gifted for use as parks and "conservation" areas.

Table 5. Known Instances of Gasworks Dumping in the Greater New City Area.

Date Created	Location	Known Conditions or Circumstances of Dumping
1880	Northern Gas Light Co., Borough of The Bronx	1880: "The Inspectors recommend that the Northern Gas-Light Company be required to abandon the dry-lime process and adopt the iron process in its stead; they be required to provide suitable wells for the ammonia water and to prevent the overflow of the tar wells running into the river, and that the surface waters of the works be carried into a drain well, closed by gates, which shall be only raised at high tide, thus enabling matters hitherto deposited to be carried off." <i>NYTimes</i> , 07Dec, 1880)
1899	U.S. Code Title 33 Sec. 441	"The placing, discharging, or depositing, by any process or in any manner, of refuse, dirt, ashes, cinders, mud, sand, dredgings, sludge, acid, or any other matter of any kind, other than that flowing from streets, sewers, and passing there from in a liquid state, in the tidal waters of the harbor of New York, or its adjacent or tributary waters, or in those of Long Island Sound, within the limits prescribed by the supervisor of the harbor, is hereby strictly forbidden." From 1901: Purchase of vast acreage of swamp and tidal lands by the Consolidated Edison Co., in execution of "Chief" Bradley's long-term plan to remove all of its gas manufacturing activities from Manhattan. (Authors' notes: This plan was achieved by construction of the Astoria and Hunts Point gas plants, between 1906 and 1924. After the Consolidated Gas Co. vacated the Manhattan plants, the many former gasworks were sold and redeveloped into residential and commercial sites, without remedial action; thus placing the public into concentrated potential exposure over subsurface toxics; Peter Cooper and Stuyvesant Town Villages are the most publically dangerous of those sites)
1903 - 1960	Astoria Gasworks Astoria Northern Queens	1901: "Chief Engineer Bradley, of The Consolidated Gas Co., has completed plans for the new plant, which include 4 new holders with a capacity of 12,000,000 cu. ft. of gas each, and 10 retort houses, as well as a number of out buildings. The cost of the plant will be several million dollars." ( <i>The Engineering Record</i> , 16Mar 1900). 1895-1906: Massive dumping of all manner of utility-industry waste, behind new bulkheads, to raise the land for construction of what had been planned to be the world's largest central gas plant. 1906-1960: Routine dumping of gashouse residuals and wastes on the general property.
Post-1924	Hunts Point FMGP Consolidated Gas Co. (Con Edison)	Large blanket dump of purifier box wastes; those of which are related to coal-carbonization yielding a distinct bluish color to ground captured in aerial images.
Post-WW II	Brentwood, L. I.	Post-WW II: Dumping of purifier box wastes as the sub-grade for pushing American Boulevard across the previous gap represented by a swamp. 2008: Remediated by AOC between NYS DEC and LILCO Con Ed begins the trend of gifting derelict gasworks property, and likely associated off-plant former gasworks dumps to municipalities and cities, for use as dedicated park lands, with covenant not to redevelop the sites.
Sep, 1947	Con Edison, at Public Place, Brooklyn, NY	"City of NY awarded Final Decree "relative to acquiring title to the (former Con ED real property required for the THREE PUBLIC PARKS, within the block bounded by Washington Street, Jackson Street, Adams Street and Fulton Street, the PUBLIC PLACE, within the b lock bounded by Adams Street, Johnson Street, Jay Street and Willoughby Street, and PEARL STREET, from Willoughby Street to the public Place, in the Borough of Brooklyn, City of New York." (Supreme Court of Kings County)

1954-1975	Town of Syosset Town Landfill	“Long Island Lighting and its successor, Keyspan Corp., used the (Syosset Town) landfill from 1954 to 1975, when it was closed by the Nassau County Department of Health.”
c. 2009	Babylon Gasworks; Off-Site	2009: Informant reports that a “hot spot” of dumped gasworks residuals and wastes was discovered and removed under DEC direction, on the opposite of the LIRR ROW, but in up-gradient GW direction.
2010	Bay Shore, L. I.	Persistent rumors about the existence of two off-plant gashouse dumps, said to be located adjacent to the formal gasworks property bounds.
To Come	New York City East River Shoreline	General industrial dumping, to depths of more than 10-20 ft, produced a westward migration of the shoreline of as much as 3 to 5 city blocks; no current knowledge of specific gasworks dump areas or hotspots within this dumped ground.
To Come	Rockaway Park FMGP LILCO	Purifier box wastes dumped on land adjacent to the former gasworks; generally dumped on the shoreline.

The potential for ongoing degradation of human health and the environment, from and through these old LILCO properties, truly is enormous. Given the compelling circumstantial evidence presented herein, all of the cited LILCO properties (past and present) should be subjected to invasive Site Investigations. Serious implications for human safety and environmental protection are embedded in the current American gasworks remediation effort, as are represented by the basic non-disclosure posture of the PRPs, who are not obliged to reveal substantial historic operational information traditionally generated and maintained in gas utility corporate archives. Hence, the reader will recognize the level of ongoing diligence to which the authors have resorted, in their efforts to establish fundamental truths concerning the nature and use of present and former gas utility properties on Long Island.

As of 2010 (time of manuscript submittal) there exists two unfortunate and inaccurate perceptions, amongst all parties to gasworks remediation on Long Island:

- 1) That gas-manufacturing toxic waste is to be expected only within the confines of actual FMGP sites, and;
- 2) That the man-made deposits placed by LILCO and its predecessors, at and around their properties is referred to as the rather innocuous term of *fill*, when, indeed, many of the borings and exploratory pit logs of these sites are more reasonably interpreted as debris representing *dumps* of material that is, more often than not, toxic.

The authors realize that local authorities will constitute the crucial point of citizen concerns related to the known and potential gasworks dump sites that we have identified.

## SUMMARY

We herewith make and present the case that it is time for the New York State Department of Environmental Conservation, along with concerned public leaders of Suffolk County, Long Island, to enter into full-disclosure discussions with National Grid, as successor to LILCO and BUG. We will continue to assist the greater public in this effort and we believe that the LILCO successors should come forth with the usual historic, archival evidence, known to have been typical of the manufactured gas industry, to form the basis for competent and thorough characterization of these sites. The public deserves to receive a full accounting of the historic use and true nature of the present subsurface conditions at each of the sites that we have identified, as well as other company sites that may not have been disclosed to date.

This is only a progress report; interested readers may contact the senior author to request an electronic copy of future versions of our report.



## 7 REFERENCES

New York State Department of Environmental Conservation, 2010, Relevant Internet Source Links for FMGP Program and Technical Information, Including Remedial Documents for Recognized Gasworks Sites:

MGP Program Overview: <http://www.dec.ny.gov/chemical/24904.html>

FMGP Remedial Action Site List: <http://www.dec.ny.gov/chemical/24921.html>

FMGP Records of Decision (RODS): <http://www.dec.ny.gov/chemical/24913.html>

Hatheway, A. W., FMGP Website: [www.hatheway.net](http://www.hatheway.net)