



May 24, 2013

TO: Mayor and Members of Council

FROM: Denise Turner Roth, City Manager

SUBJECT: Items for Your Information

UPCOMING MEETINGS

- May 30 @ 3:00pm Council Work Session
- May 30 @ 5:30pm District 5 Neighborhood Walk
- June 3 @ 5:30pm District 3 Neighborhood Walk
- June 4 @ 5:30pm Council Meeting

Growth Strategy Map Update

Attached is a memorandum from Planning and Community Development Director Sue Schwartz, dated May 24, 2013, regarding an update to the 2025 Comprehensive Plan, growth strategy map.

E.H. Glass County Landfill

Attached is a memorandum from Field Operations Director Dale Wyrick, dated May 24, 2013, regarding a community information session on E.H. Glass County Landfill, located at 1103 Nealtown Road. The session was hosted by the Pre-Regulatory Landfill Unit of the North Carolina Department of Natural Resources Division of Waste Management Inactive Hazardous Sites Branch, on May 21, 2013.

City Outdoor Pools & Spraygrounds Open Memorial Day Weekend

Attached is a press release regarding the opening of the City's outdoor pools and spraygrounds this weekend.

General Assembly Update

Attached is the General Assembly Update from Assistant General Counsel Tom Carruthers.

Public Information Request Report

Attached is the weekly Public Information Request Report for the week of May 24, 2013

Contact Center Feedback

Attached is the weekly report generated by our Contact Center for the week of May 13, 2013 through May 19, 2013.

Small Group Meetings

Attached is the Small Group Meeting report for the week of May 17, 2013 through May 23, 2013, between City Staff and [more than two but less than five] Councilmembers.

DTR/mm
Attachments

cc: Office of the City Manager
Global Media

Planning and Community Development
City of Greensboro



May 24, 2013

TO: Jim Westmoreland, PE Deputy City Manager

FROM: Sue Schwartz, FAICP

SUBJECT: Growth Strategy Map Update

Background

The Growth Strategy Map adopted in 2003 as part of the Connections 2025 Comprehensive Plan delineates the anticipated location and timing of growth outside Greensboro's corporate limits and serves as the primary guide for implementing City policy regarding water and sewer service extensions outside the city limits. The growth areas are delineated into three tiers that respond to the water and sewer service area boundary, annexation agreements with nearby jurisdictions and projected infrastructure improvements.

Updating the Map

In the decade since the adoption of the Comprehensive Plan, circumstances in the economy, state law and City utility policy have changed, impacting the City's expectations for growth. The proposed revisions to the Growth Strategy Map were developed to respond to these changes. This process included representatives from Fire, Police, Water Resources and Solid Waste who provided data regarding service capacity and planned improvements. These were used to establish the proposed tier boundaries and timeframes for anticipated growth within each tier.

Summary of Changes

Overall, the area included in the proposed growth strategy tiers increased by nearly 150 acres. The most substantial change is the shift of more than 15,000 acres to Tier I, which anticipates growth to occur between now and 2019. The attached handout provides more detail on the proposed changes, along with the map.

Next Steps

Representatives from the construction and real estate industry are being engaged to provide feedback on the proposed structure and timing of the growth tiers, and public comment is welcome. Staff anticipates a Planning Board public hearing on August 21, 2013, and the City Council public hearing on September 17, 2013.

For more information, contact Hanna Cockburn, johanna.cockburn@greensboro-nc.gov or 336-336-574-3576. The corresponding information website and on-line survey will be available by May 31, 2013 in the news section of the Planning and Community Development site.

SS/jeic

Attachment A: Growth Strategy Map Update

cc: Hanna CockburnAICP
Steve Galanti, AICP

Growth Strategy Map Update

Background

The 2003 adoption of the Connections 2025 Comprehensive Plan included a Growth Strategy Map which identified future growth areas outside Greensboro's corporate limits. The future growth area was delineated into three tiers with specific geographic boundaries and time horizons for implementation.

The growth tier boundaries were established based on the adopted water and sewer service area boundary, annexation agreements with nearby jurisdictions and projected capital improvement plans for infrastructure extension. The growth tiers are used to establish the geographic availability and timing of water and sewer infrastructure. Since its adoption, numerous conditions have changed, resulting in the need to update the Growth Strategy Map.



What Changed?

In the decade since the adoption of the Growth Strategy Map, circumstances in the economy, utility planning and state law have changed which impact expectations for growth. These changes include:

- Adoption of the 2010 Water Supply Master Plan.
- In April 2012, the City Council adopted new policies regarding the extension of water and sewer service lines outside the city limits.
- The area included in the City's boundary line and area of extra territorial jurisdiction has changed dramatically, with more than 200 annexations occurring in the past decade.
- Adjustments to the annexation agreement boundaries with High Point and Jamestown, resulting in revisions to the Water and Sewer Service Area (WSSA) boundary.
- North Carolina General Statutes regarding annexation have changed significantly in the past several years, making city-initiated annexation more complex and less likely to occur on a regular basis.
- Changes in the housing market, bank lending practices and the local economy led to slower than expected growth, leaving the growth tier timelines out of sync with current demand.
- Slower growth has led the City to delay some capital improvement projects, including utility extensions and construction of new police and fire stations.

By the Numbers: Growth Strategy Map Changes

Tier I

Existing

Timeline: 2007-2013

5,896 Parcels

13,547 Acres

Proposed

Timeline: 2013-2019

11,078 Parcels

+ 5,182 Parcels (88%)

29,232 Acres

+ 15,684 Acres (116%)

Tier II

Existing

Timeline: 2013-2019

6,041 Parcels

22,112 Acres

Proposed

Timeline: 2019-2025

3,064 Parcels

- 2,977 Parcels (-49%)

14,186 Acres

- 7,925 Acres (-36%)

Tier III

Existing

Timeline: 2019 +

9,913 Parcels

37,343 Acres

Proposed

Timeline: 2025+

7,758 Parcels

- 2,155 Parcels (-22%)

29,733 Acres

- 5,182 Acres (88%)

Updating the Map

City staff and community stakeholders are being engaged to identify appropriate adjustments to the growth tiers. Representatives from Fire, Police, Water Resources and Solid Waste have provided data regarding service capacity and planned capital improvements. Discussions are also underway to structure a regular review of the boundaries to keep pace with changes in boundaries and service areas as growth occurs.

Representatives from the construction and real-estate industry are being engaged to provide feedback on the structure and timing of the proposed growth tiers. The proposed Growth Strategy Map has been made available for review in the Office of Planning and Community Development located in the Melvin Municipal Office Building, and the map has been made available on the City website. Public comment can be made through the City website, by email, or by mail using the contact information below.

Overall, the area included in the proposed growth strategy tiers increased by nearly 150 acres from 73,003 acres to 73,152 acres. The number of total parcels included also increased from 21,850 parcels to 21,900 parcels. A breakdown of changes within each tier is provided on the first page of this document. The proposed timeframe for anticipated growth within each tier has also revised. Tier I growth is anticipated to occur between 2013 and 2019, while growth in Tiers II and III is anticipated to occur beyond 2019.

Staff is in the early stages of updating the Connections 2025 Comprehensive Plan, which will include a comprehensive review of the City's growth strategies. However, updating the Growth Strategy Map now allows for projects outside current city limits that require services to proceed without added delays.

Timeline

Below is the proposed timeframe to complete the update to the growth strategy map.

May-June, 2013	Final Stakeholder Review
June-July, 2013	Public Comment Period
August 21, 2013	Presentation to Planning Board
September 17, 2013	Presentation to City Council



For More Information, Contact:

Steve Galanti, AICP
Current Planning & Compliance Manager
Phone: 336-373-2918
E-mail: steve.galanti@greensboro-nc.gov

Hanna Cockburn, AICP
Long Range & Strategic Planning Manager
Phone: 336-574-3576
E-mail: johanna.cockburn@greensboro-nc.gov

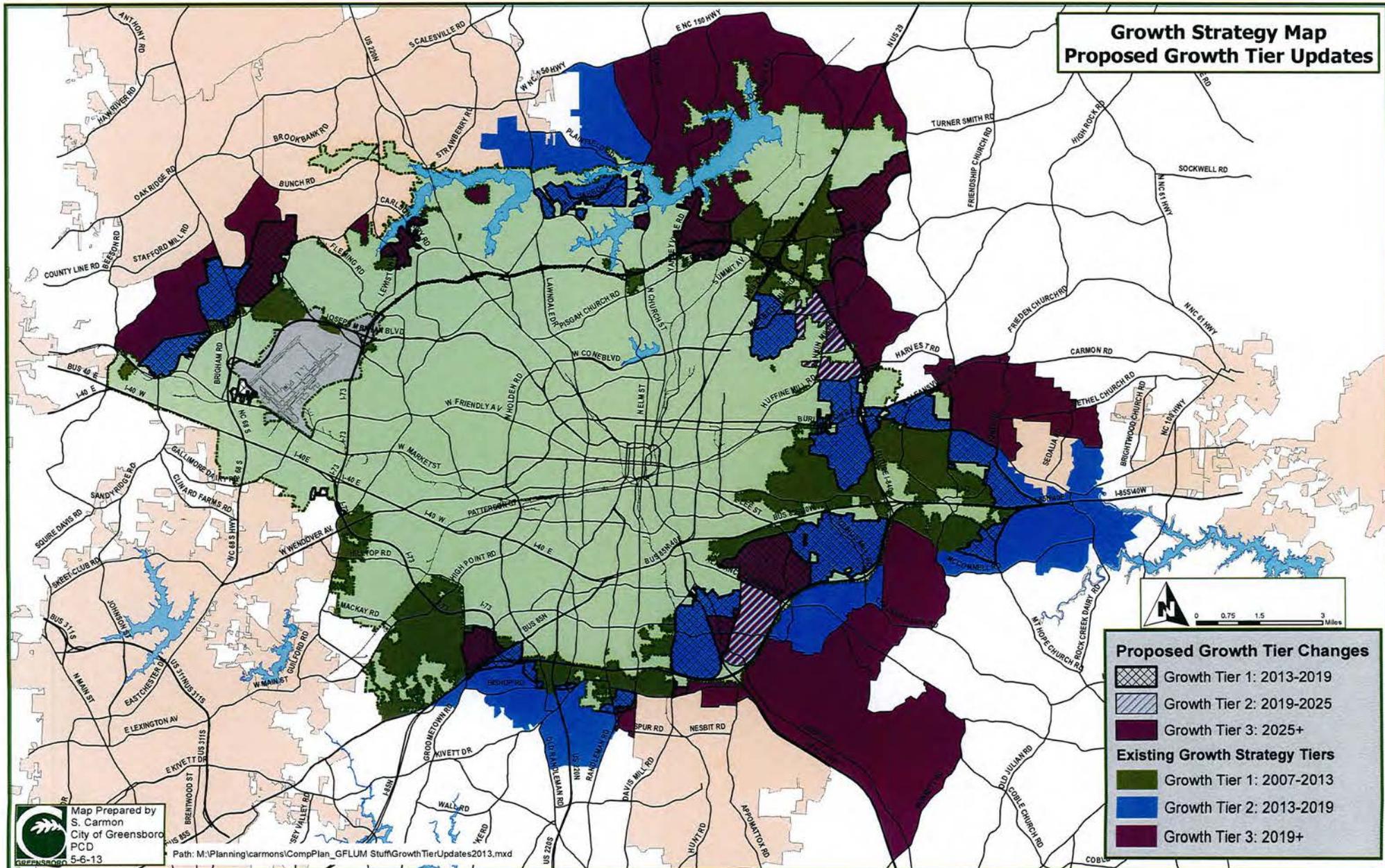


City of Greensboro
North Carolina

Planning & Community Development
300 West Washington Street
PO Box 3136
Greensboro, NC 27402-3136
www.greensboro-nc.gov

Promoting quality growth throughout Greensboro

Growth Strategy Map Proposed Growth Tier Updates



Map Prepared by
S. Carmon
City of Greensboro
PCD
5-6-13

Path: M:\Planning\carmons\CompPlan_GFLUM Stuff\Growth Tier Updates 2013.mxd

Proposed Growth Tier Changes

- Growth Tier 1: 2013-2019
- Growth Tier 2: 2019-2025
- Growth Tier 3: 2025+

Existing Growth Strategy Tiers

- Growth Tier 1: 2007-2013
- Growth Tier 2: 2013-2019
- Growth Tier 3: 2019+

Field Operations Department
City of Greensboro



May 24, 2013

TO: David Parrish, Assistant City Manager

FROM: Dale Wyrick, P.E., Director of Field Operations

SUBJECT: Information Session on E.H. Glass County Landfill, located at
1103 Nealtown Road

On May 21, 2013, Gail Hay and I attended a public information session hosted by the Pre-Regulatory Landfill Unit of the North Carolina Department of Natural Resources Division of Waste Management Inactive Hazardous Sites Branch (the Unit) at Peeler Recreation Center from 6 to 8 pm. The purpose of the meeting was to inform the community on the progress of the E.H. Glass County Landfill assessment. The Unit, their consultant for this site (S&ME, Inc.) and N.C. Department of Health and Human Services representatives were in attendance to discuss their findings and answer questions from the public. Handouts from the meeting are attached.

The public reviewed posters showing the waste disposal area, test sample locations, and a proposed remedy for the landfill. The proposed remedy for the closed landfill includes a two-foot soil cover, land use restrictions /deed notice, and post-remedy monitoring by the Unit.

Background

Based on a prior community request, the Unit conducted an assessment of the closed E.H. Glass County Landfill located at 1103 Nealtown Road. The E.H. Glass County Landfill is a pre-1983 landfill that operated from 1965 to 1974. The Unit conducted an assessment of the landfill and the most recent report entitled *Remedial Investigation – Waste Boundary, Surface Water/Sediment, and Landfill Gas Evaluation* and dated December 21, 2011, is available to the public on the NCDENR website (<https://edm.nc.gov/DENR-Portal/>) under the following ID: 980557607. In addition, the N.C. Department of Health and Human Services, Division of Public Health, issued a Health Consultation report for E.H. Glass County Landfill dated January 2, 2013 (attached).

Next Steps

The Unit will issue a final report summarizing their findings, as well as a draft Remedial Action Plan. The draft Remedial Action Plan will be made available for a 45-day public comment period prior to implementation. You can expect additional communication from me once the final report and Remedial Action plan is issued.

If further is required, please advise.

DDW

Attachments: Handouts from Information Session
Health Consultation Report

FACT SHEET

E.H. Glass County Landfill
1103 Nealtown Road, Greensboro, NC

Contact: Bruce E. Lefler, Jr., Hydrogeologist
919-707-8332

Pre-Regulatory Landfill Unit
Inactive Hazardous Sites Branch - Superfund Section
Division of Waste Management - NCDENR

LANDFILL HISTORY

Located on privately-owned property.

Operated by one individual, Mr. E.H. Glass, from about 1965 to 1974.

The landfill contains typical household waste items, brick, glass, textile, scrap metal, and plastic.

At the time this landfill was accepting waste, approximately 8,000 gallons of Vicks Nyquil and nasal drops were mixed with landfill soil at the site. There were no regulations concerning acceptable types of waste at that time (pre-1980's).

LANDFILL ASSESSMENT

An assessment extending beyond the waste disposal boundary of the landfill has been conducted by the Inactive Hazardous Sites Branch of the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Waste Management (DWM), Superfund Section.

The landfill area was originally believed to include two waste disposal areas totaling 23.4 acres. Subsurface investigations concluded waste is limited to one area of about 17.4 acres.

Soil (surface and subsurface), groundwater, landfill gas, landfilled waste, surface water, and sediment have been sampled.

Contamination was limited to the waste disposal area only. Vapors from the waste disposal area are not a concern.



CONCEPTUAL REMEDY

The waste disposal area will have a two foot soil cover.

Land use restrictions and a deed notice will be placed on the properties containing the landfill.

Post-remedy monitoring will include landfill gas, groundwater, surface water, and sediment.

Future use will include green space activities.

The sources of the information in this letter are available in the public repository at any City of Greensboro library.



**DIVISION OF WASTE MANAGEMENT
SUPERFUND SECTION**

LIST OF ATTENDEES

**Informational Session
May 21, 2013, 6:00-8:00 PM
Peeler Recreation Center
1300 Sykes Avenue
Greensboro, NC 27405**

**E.H. Glass County Landfill
1103 Nealtown Road
Greensboro, North Carolina**

Linda Culpepper
Deputy Director, Division of Waste Management
North Carolina Department of Environmental and Natural Resources

Cheryl Marks
Supervisor, Pre-Regulatory Landfill Unit
North Carolina Department of Environmental and Natural Resources

Bruce E. Lefler, Jr.
Hydrogeologist, Pre-Regulatory Landfill Unit
North Carolina Department of Environmental and Natural Resources

Sandy Mort, MS
Health Assessor
North Carolina Department of Health and Human Services

Dale Wyrick, P.E.
Director, Field Operations Department
City of Greensboro

Gail G. Hay, P.E.
Technical and Planning Support Manager, Field Operations Department
City of Greensboro

Thomas P. Raymond, P.E.
Senior Engineer
S&ME, Inc.

Samuel P. Watts, PG
Senior Geologist
S&ME, Inc.

PRE-REGULATORY LANDFILL PROGRAM
Division of Waste Management
North Carolina Department of Environment and Natural Resources

In July 2008, the General Assembly ratified Senate Bill 1492 to address the hazard posed by pre-1983 municipal landfills and dumps that operated largely before solid and hazardous waste disposal regulations. These pre-regulatory landfills are areas where community municipal solid waste disposal occurred but ended prior to January 1, 1983. Municipal landfills that continued to accept waste after that date are under the jurisdiction of the Division of Waste Management's (DWM) Solid Waste Section and are not covered by the Pre-Regulatory Landfill Program. Waste disposal sites that primarily accepted industrial waste are also not eligible for this program.

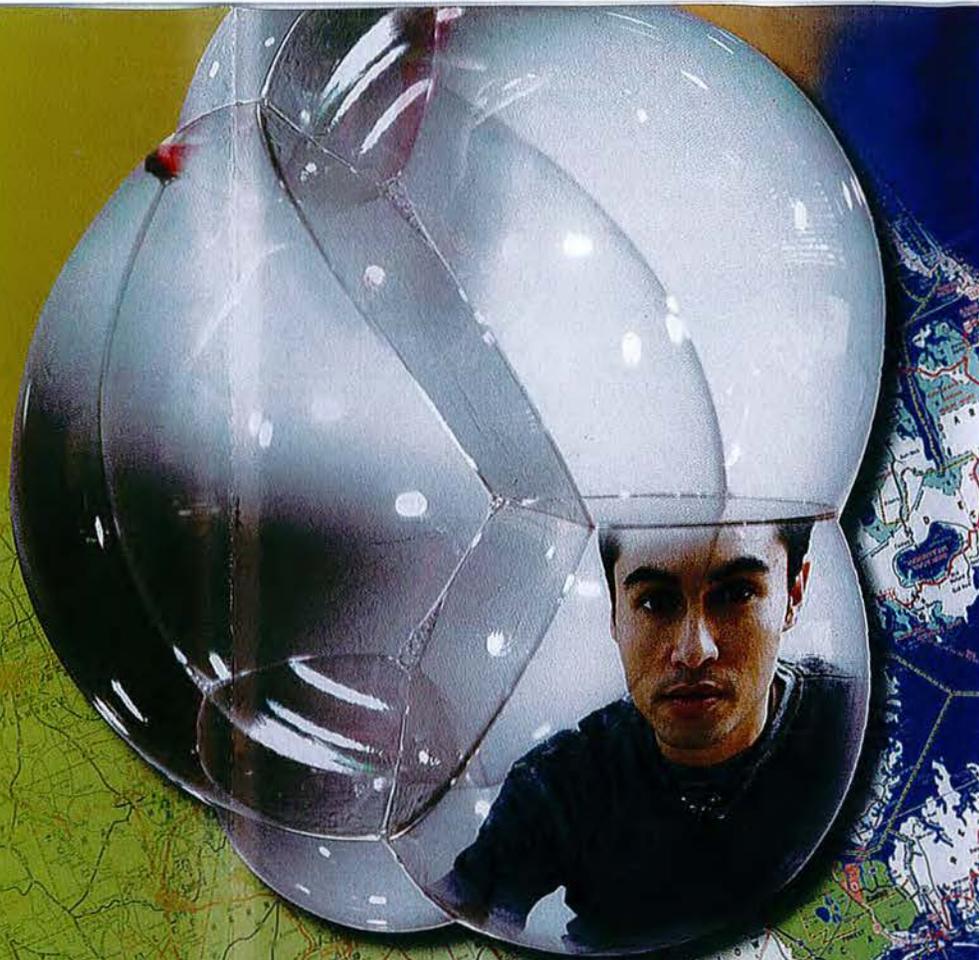
Prior to the passage of this law, owners and operators of the landfill property and other responsible parties had to fund any required assessment and cleanup work to address the public health and environmental hazards posed by these sites. As part of this legislation, a portion of a state-wide disposal tax on solid waste would go to fund state assessment and mitigation of contaminant risks. The Pre-Regulatory Landfill Unit was established in 2009 within the DWM's Inactive Hazardous Sites Branch to administer this work.

With this new program and funding, an owner or a potentially responsible party who cooperates with the state's contaminant assessment and remedial activities does not have to pay for these activities. Cooperation with assessment and implementation of control and mitigation measures includes, but is not limited to: granting access to the site, allowing installation of monitoring wells (groundwater) and probes (landfill gas), allowing installation and maintenance of improvements to the landfill cap, allowing installation of security measures, agreeing to record and implement land-use restrictions, and providing access to any records regarding the landfill. If a property owner or responsible party fails to fully cooperate with assessment of the site and implementation of control and mitigation measures, the State may seek to recover any costs incurred to address the site.

The first steps of the program were to locate all the known sites and to determine what immediate exposure risks existed. In most cases, the information on these sites was very limited. The program conducted research on the site's location, use and receptors such as nearby residences or water supply wells at each site and then sites were prioritized for action.

A site-specific risk-based remedy will be implemented at each landfill in order of risk posed, provided there is availability of state funds and owner cooperation. Currently there are sufficient funds available to conduct these activities, which may include management of the soil cover, mitigation of groundwater contamination, or even removal of highly contaminated waste. At most sites, a land use restrictive covenant, in the form of Declaration of Land Use Restrictions, paired with a *Notice of an Inactive Hazardous Substance or Waste Disposal Site* (in the form of a survey plat) are recorded as part of a risk-based remedy in order to ensure property use is limited to safe uses and to ensure engineering control measures remain in place that prevent exposure.

There are currently 677 pre-regulatory landfills cataloged. The program continues to gather information that will allow the state and local governments to control risks and allow safe reuse. This information will assist health departments and community planners within the local government to make informed decisions about appropriate development on and in the vicinity of these landfills.



Cancer and the Environment



Cancer and the Environment - August 2010
State of North Carolina
Department of Health and Human Services
HACE Program, OEF Branch, N.C. Division of Public Health



www.ncdhhs.gov



www.ncpublichealth.com

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Funds to print this document were provided by the Center for Human Health and
the Environment at North Carolina State University

NC STATE UNIVERSITY

Getting a diagnosis of cancer or learning that a loved one has been diagnosed with cancer can be devastating. It is usually at this moment that we become more aware of other people close to us who are also touched by this disease. It is natural to wonder why so many people around us seem to be suffering from cancer, and if there could be a connection to chemicals in the environment where you live and work.

Cancer is more common than most people realize.

In the U.S., cancer affects approximately one in two men and one in three women in their lifetime.¹ An estimated 40 percent of North Carolinians will develop cancer in their lifetime.²

Cancer is more likely to occur as people get older.

Because people are living longer, more cases of cancer can be expected in the future. This increased life expectancy may create the impression that cancer is becoming much more common; however, the increase in the number of cases of cancer is related in large part to the growing number of elderly people in the population.³

Cancer is not a single disease.

Cancer is a group of more than 100 different types of conditions characterized by uncontrolled growth and spread of abnormal cells.

Cancer has many different causes.

Different types of cancer have different causes. What changes a breast cell into breast cancer is not the same as what changes a white blood cell into leukemia. Cancer is likely to be caused by a combination of factors acting together over many years. **Heredity** and the **Environment** are cancer causing factors.

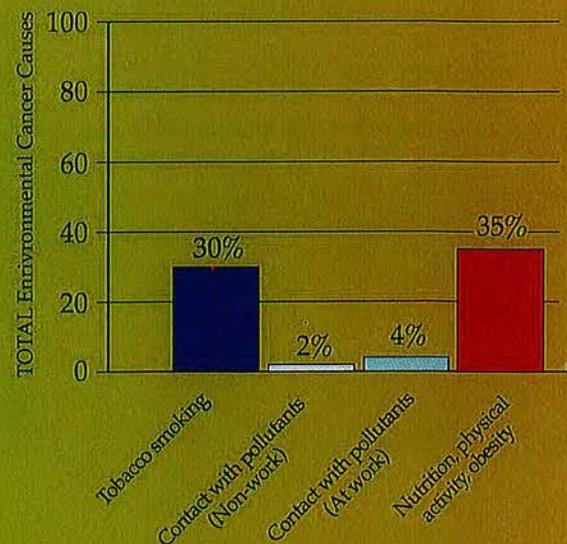
Hereditary factors
(physical characteristics we inherit from our parents), and

Environmental factors
• how we live, also called lifestyle factors. This includes things we do such as exercise, smoking, and what we eat.
• contact with cancer-causing agents (called "carcinogens").

Environmental factors make up an estimated 75 to 80 percent of cancer cases and deaths in the U.S.

These factors include things we do, such as exercising and smoking, as well as contaminants in the environment.

Environmental Causes of Cancer



American Cancer Society, Cancer Facts & Figures 2010.

¹ American Cancer Society, *Cancer Facts & Figures 2010*. Atlanta: American Cancer Society; 2010, p.1. ² "Health Profile of North Carolinians: 2009 Update" NC DHHS/DPH/State Center for Health Statistics, gov/cancertopics/factsheet/Risk/clusters ³ American Cancer Society, *Cancer Facts & Figures 2010*. Atlanta: American Cancer Society; 2010, p.50 ⁴ Adapted from the Centers for Disease Control and Preventi

Cancer Clusters

A cancer cluster is a greater-than-expected number of cancer cases that occur within a group of people in a geographic area over a period of time.

A cancer cluster usually involves:

- one type of cancer;
- a rare type of cancer;
- cancers diagnosed over a short period of time;
- groups of cases among children or a type of cancer that is not usually found in a particular age group.

A greater than expected number of cancer cases could be the result of a variety of reasons, including chance.

For example, it is like flipping a coin. You can get heads six times in a row although the probability of it happening is very small.

Trying to identify a cause for a cancer cluster has proven to be extremely difficult.

Extensive follow-up investigations can be done, but these often take years to complete and require extensive research. In most instances, even when these activities are conducted, no cause is found.

Clusters of cancer cases have been identified in North Carolina.

However, there have been no cases where a cluster of cancers was proven to occur as a result of an environmental exposure.

The NC Central Cancer Registry monitors cancer rates throughout the state.

www.epi.state.nc.us/SCHS/CCR/

You can read more about how cancer is investigated in communities

by visiting the CDC Web site at www.cdc.gov/nceh/clusters/faq.htm

Even when a scientist and/or the medical community identifies a true cancer cluster, there is usually no single external cause or cancer-causing agent that can be identified.



You can report a suspected cancer cluster or obtain information on cancer statistics for your area.

Contact your local health department at www.ncalhd.org/county.htm, or the N.C. Central Cancer Registry at (919) 715-4574. These agencies provide the first level of response and the most current data to answer your questions.

For more information

Centers for Disease Control and Prevention
www.cdc.gov/nceh/clusters/faq.htm

National Cancer Institute www.cancer.gov/cancertopics/factsheet/Risk/clusters

Cancer Clusters, American Cancer Society
www.cancer.org/docroot/PED/content/PED_1_3x_Cancer_Clusters.asp?sitearea=PED

Examples of HACE recommendations:

- If the water is polluted, we may recommend that people get their drinking water from another source.
- We may recommend additional studies to define the extent of the contact with harmful substances.
- We may recommend, coordinate and/or develop activities to educate the community about the harmful substances and ways residents can protect their health (for example, flyers, community meetings and presentations).

Evaluations

DO NOT include:

- Personal physical examinations
- Door-to-door medical surveys
- Medical care
- Epidemiological studies



HACE is funded through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), a federal public health agency.

www.atsdr.cdc.gov



N.C. Department of Health and Human Services
Division of Public Health

<http://publichealth.nc.gov> • www.ncdhhs.gov

Occupational & Environmental Epidemiology

Tel. 919-707-5900

E-mail: nchace@dhhs.nc.gov

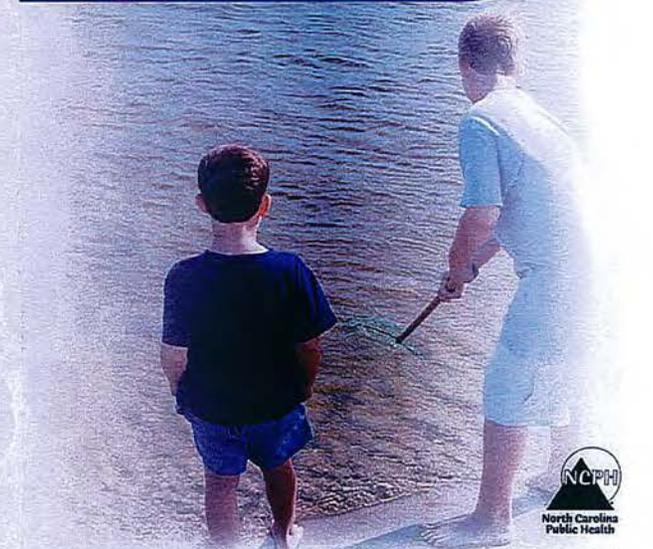
www.epi.state.nc.us/epi/oee/hace.html

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HACE Program

(Health Assessment Consultation and Education)

Conducting health risk assessments in communities affected by environmental pollution.



Division of Public Health
Occupational & Environmental Epidemiology Branch

Who we are

The N.C. HACE is a state program that receives federal funds to conduct health risk assessments in communities affected by environmental pollution.

What we do

We conduct scientific evaluations to determine if people in communities are in contact with harmful substances in the environment, and what the health effects of this contact may be. These evaluations are conducted throughout North Carolina, usually at hazardous waste sites. We work with other state, federal and local agencies and organizations to gather information about a site and to ultimately reduce and/or prevent contact with harmful substances.



Our Team

Our team includes specialists in toxicology, epidemiology, health risk assessment and health education.

How we do it

- Review existing environmental and human health data;
- Collect community health concerns;
- Conduct health risk assessments*;
- Prepare reports to summarize findings, and
- Make recommendations to appropriate individuals and organizations, so they can make decisions and take pertinent action to protect public health.

***Health Risk Assessment** – a comprehensive scientific estimate of health risks to persons who could be exposed to hazardous materials present at a site. For more information see our “Public Health Assessment and Risk Assessment Process” fact sheet or search for “HACE” on the N.C. Public Health website, www.ncpublichealth.com.

Community Involvement

The involvement of community residents and local organizations and officials is very important to this process, because they can contribute important and unique information that cannot be located elsewhere. Community members can:

- Provide insight about the site's history and uses;
- Identify local activities that might put people at risk;
- Provide information about health concerns; and
- Help put recommendations to work.

Our report will tell you:

- If people have been or are likely to be in contact with a toxic substance, and usually, how and when they were in contact with the substance,
- Whether the contact is likely to lead to illness, and
- Ways to protect your health.



Health Consultation

E. H. Glass County Landfill
N.C. DENR Site: NCD980557607
Greensboro, Guilford County, North Carolina

January 2, 2013

Prepared by:

Health Assessment, Consultation and Education Program (HACE)
Medical Evaluation and Risk Assessment Unit (MERA)
Occupational and Environmental Epidemiology Branch (OEE)
Epidemiology Section (EPI), Division of Public Health (DPH)
North Carolina Department of Health & Human Services (DHHS)
Raleigh, North Carolina

E. H. Glass County Landfill Health Consultation

SUMMARY

The Guilford County Health Department requested the N.C. Department of Health & Human Services, Division of Public Health (DPH) to evaluate environmental data collected for the inactive E.H. Glass County Landfill to determine the potential for public health issues. This report summarizes the information reviewed by N.C. DPH and provides conclusions and recommendations. The environmental reports and data were collected by the N.C. Department of Environment and Natural Resources (DENR) and their contractors.

The inactive E.H. Glass County Landfill site consists of a 15.9 acre unlined waste disposal area ("disposal area B" in Appendix Figure 1) located across 2 properties in eastern Greensboro, Guilford County, N.C. The 2 properties are identified as located at 1103 and 1307 Nealtown Road and include a total of 57 acres. Wastes were disposed of on the site from 1965 to 1973, prior to the time of State regulations for the operation and monitoring of landfills. A second area ("disposal area A" in Appendix Figure 1) on the property was also investigated and found to not be an area of waste disposal. The site is being evaluated by DENR because the owners wish to develop the property. No environmental data are available for the inactive landfill prior to DENR's investigations.

N.C. DPH concluded:

1. *There is no indication that people have been harmed by ingestion of groundwater on the property as a primary drinking water source.*

Groundwater in the vicinity is not currently used as a drinking water source.

Records provided by the county indicate that it is unlikely that private wells were in use in the area during the time the landfill began taking waste.

2. Chemicals may be moving from the sub-surface waste disposal areas into the shallow groundwater and are being discharged into the stream. Chemicals found in the groundwater were also detected in the surface water in the unnamed stream flowing through the property adjacent to the landfill. These chemicals would not be expected to occur naturally in the groundwater or surface water.
3. *Adverse health effects were not indicated for children that play in the stream and accidentally ingest small amounts of the water or sediment for the compounds that could be identified in the stream water and sediments.*

(This assessment is based on children 1-6 years of age playing in the stream 6 hours per week, for 7 months of the year.) There is no way to assess the potential health effects of ingestion or contact with the number of unidentified chemicals that were detected in the surface water and sediment.

4. *We do not know and cannot predict the potential health risks associated with ingesting or having direct skin contact with all of the chemicals present at the property.*

A number of metals and organic chemicals were identified in the groundwater, surface water and sediment samples collected on the property. The identity and concentration of many additional organic compounds could not be confirmed (“tentatively identified compounds” included in the laboratory reports) due to limitations of the analytical methods and a lack of health-effects data.

5. *People are not likely to have been exposed to gases from the landfill. Tests indicate that landfill gases/vapors present in the subsurface in and near the waste disposal areas are not escaping through the intact soil cover.*

Thirty (30) volatile organic compounds (VOCs) were detected in sub-surface gas samples taken in and adjacent to the waste disposal areas. Five of the VOCs (benzene, chloroform, 1,2-dichloroethane, trichloroethylene, vinyl chloride) are known or suspected human carcinogens and were detected in the sub-surface at concentrations greater than the cancer screening level (CREG). Three additional VOCs (dichlorodifluoromethane, 1,1-dichloroethane, tetrachloroethylene) were detected in the sub-surface at concentrations greater than non-cancer health screening levels for inhalation exposures.

Recommendations

The environmental investigations conducted on the inactive E.H. Glass County Landfill site and the 2 associated adjacent properties were performed by DENR under the State’s cooperative agreement program established to address pre-regulatory waste disposal sites. Under this agreement DENR provides investigative services to identify and remediate environmental risks on these sites in exchange for the property owners’ agreement to DENR-specified land-use restrictions to prevent future harm to the environment or to human-health (DWM 2012a, DWM 2012b).

DENR has indicated the following negotiable remedies and land-use restrictions likely will be specified for the inactive landfill site and adjacent properties:

1. Placement of a soil cover (“cap”) over the waste disposal area. A typical soil cover consists of a minimum of 2 feet of clean soil over the waste disposal area. Disturbance of the soil cover by excavation or penetration will be prohibited. Disturbance of the soil cover for surface structures such as parking lots or walking paths may be allowed with prior approval from DENR.
2. No enclosed structures are to be constructed over the waste disposal area. DENR will monitor for the migration of subsurface landfill gas from the waste disposal area for a minimum of 2 years. Indoor air monitoring will be conducted if DENR detects the migration of subsurface gas during the monitoring period and buildings are constructed within 100 feet of the waste disposal area.
3. To restrict the access and use of groundwater on the site. (In addition, a minimum 500 foot separation from the edge of the delineated waste disposal area and a drinking water supply well is required by state regulation 15A NCAC 02C .0107(J). Counties were given further authority to regulate water supply wells under GS 87-97.)

N.C. DPH recommends the following additional conditions to reduce the potential for adverse impacts to human health due to the chemicals associated with the inactive E.H. Glass County Landfill:

1. *Restrict use of the contaminated groundwater on the property as a source of water that would result in direct skin contact (such as for a swimming pool, showering or bathing), ingestion (such as a drinking water source or for watering vegetable or fruit plants) or inhalation (through activities such as washing dishes or laundry, or watering lawns).*
Treatment of these waters to remove the organic chemical contaminants would eliminate this concern.
2. *Prevent children from having direct contact with the surface waters and sediments on the property.*
Restrict the potential for children to be exposed to the surface water or sediments during recreational activities such as playing in the stream/ponds.
3. *Implement land use restrictions that prevent excavation and disturbance of the soil cap as long as the waste remains in place.*
4. *Prevent access to the waste disposal areas and surface water and sediment areas if the property is not re-developed or the site control activities identified above are not implemented or maintained.*
5. *If the subsurface landfill gas monitoring detects gas levels that exceed U.S. EPA or NC indoor air levels monitor indoor air quality of enclosed structures constructed on the property within 100 yards of the waste disposal area for volatile organic compounds (VOCs), methane and hydrogen sulfide on an every 4 months schedule for 1 year after construction. As an alternative, implement engineering controls to prevent entry of subsurface vapors into the enclosed structures.*
6. *Adequate training and protective measures should be implemented to prevent construction or remediation workers from being exposed to surface or sub-surface chemical and physical hazards that exist on the property.*
7. *Test any new or existing drinking water wells within one-half mile of the inactive E.H. Glass County Landfill for metals (arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, zinc), VOCs + TICs, sulfate, ammonia nitrogen, pH, and conductivity. If there are detections of VOCs also test for SVOCs + TICs.*

Questions about the *E.H. Glass County Landfill Site Health Consultation* can be forwarded to:

mail: HACE
N.C. Div of Public Health/OEE
1912 Mail Service Center
Raleigh, NC 27699-1912

e-mail: NCHACE@dhhs.nc.gov

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E. H. Glass County Landfill Health Consultation

SITE BACKGROUND INFORMATION

Site location -

The inactive E.H. Glass County Landfill site is located on adjacent properties located at 1103 and 1307 Nealtown Road, Greensboro, N.C. 27405. The inactive landfill "site" is identified as an area in the northwest and central portions of the 2 properties (identified as "disposal area B", Appendix Figure 1).

Site description -

The inactive E.H. Glass County Landfill site encompasses a 15.9 acre unlined waste disposal area ("disposal area B", Appendix Figure 1). The remaining area of the 2 adjacent properties includes 2 ponds and an unnamed stream that runs south to north along the southwestern perimeter of the property. A sanitary sewer easement also crosses the southern portion of the property (Appendix Figure 1). No wastes were found in a second area located in the southeast corner of the 2 properties ("disposal area A", Appendix Figure 1) also investigated as a possible waste disposal area. The smaller of the 2 properties is privately owned (15 acres, the northwest property on Appendix Figure 1 identified as "Tract A"). The remaining acreage is owned by a non-profit corporation (approximately 42 acres, the southeast property identified as "Tract B" on Appendix Figure 1). The owner of the Tract B property recently sold a portion of their property to a second non-profit corporation ("Tract C", Appendix Figure 1).

The N.C. Department of Environment and Natural Resources (DENR) noted evidence of trespassing on the property (illegal waste dumping, fishing and hunting). Waste material was reported in the stream bed in 2009, including buried 55-gallon drums, tires, metal debris, plastic and glass (SSR 2009). The property slopes from the east to the west side toward the stream. The groundwater also flows from the east toward the west/northwest side of the property. Groundwater was measured at depths from 1.1 to 19.3 feet below the ground surface with the shallowest groundwater located along the stream (CDP 2011).

The E.H. Glass County Landfill is an inactive unlined landfill that operated from 1965 to 1973, at a time prior to disposal facility regulations. Because the landfill operated prior to regulatory oversight there are no records of what and where waste was buried. Documents provided by Guilford County and DENR indicate Vicks[®] cough, cold and nasal products were likely disposed at the facility.

Adjacent areas -

Residential areas are located to the north, south and west adjacent to the inactive landfill property. These residences are served by a public water supply and there are no known water supply wells within 1000 feet of the former landfill property. One private well that was not being used for drinking water was identified in the vicinity (SSR 2009).

Proposed development and site use restrictions -

One of the property owners has submitted a proposal for development on a portion of their property to include a building, parking lot and conservation areas (SSR 2009). DENR will likely implement land-use restrictions for the site that require a clean soil cover of a specified depth over the waste disposal area and a limitation on the location and type of structures that may be placed over the waste disposal area. In addition, state regulations do not allow the placement of water supply wells within 500 feet of a waste disposal area (State code 15A NCAC 02C .0107(J)).

Site investigations by DENR -

North Carolina created the Inactive Hazardous Sites Act to provide a state program to assess and remedy environmental hazards associated with pre-regulatory landfills. The bill is administered by N.C. DENR Division of Waste Management (DWM). The bill provides for assessment of environmental hazards and application of measures to control and remedy identified hazards such as landfill capping, installation of security measures and groundwater or land-use restrictions. DENR assessment activities began at the inactive E.H. Glass County Landfill in 2009 and a condition of "no immediate hazard was observed" was reported following initial investigation activities. Additional assessment activities continue on the site and adjacent properties.

DESCRIPTION OF THE HEALTH CONSULTATION PROCESS

The N.C. Division of Public Health (DPH) evaluated the potential for harmful health effects from contact with the contamination identified on the inactive E.H. Glass County Landfill site and the 2 adjacent properties included in DENR's investigations. The evaluation focused on the potential contact of the community living in the vicinity of the inactive landfill and persons that may visit the property in the future if the property is redeveloped. The health consultation included:

1. Gathering all the environmental analytical data.
2. Determination of how persons may have in the past / are currently / or may in the future come into contact with chemicals that may be present on the property.
3. Determine which chemicals are present on the property at concentrations that could have presented or could present a potential health hazard in the future.
4. Summarize the findings of the health consultation for the community.
5. Provide recommendations as needed:
 - a. for additional environmental investigations to better define potential public health concerns;

- b. to reduce or eliminate exposures to site contaminants or physical hazards; or,
- c. to monitor the effectiveness of selected strategies to detect, reduce or eliminate potential exposures

Environmental data evaluated -

DPH reviewed environmental data collected on the inactive E.H. Glass County Landfill site and the 2 adjacent properties by DENR and their contractors. These included:

1. The *2009 Site Summary Report* that reviewed historical and current site uses, structures, and physical features including visual delineation of waste disposal areas (SSR 2009).
2. The *Contamination Delineation Phase Report* which reported analytical data for 15 groundwater monitoring wells and an above-ground landfill gas survey. The samples for this study were collected in 2010 (CDP 2011).
3. The *2011 Remedial Investigation* which reported analytical data for 57 soil samples, 25 landfill gas sample locations collected on multiple occasions, 13 sediment samples, and 12 surface water samples (RI 2011).
4. Laboratory reports for sub-surface gas samples collected in May and July 2011 and analyzed for volatile organic compounds (VOCs) (ESC 2011).

How Persons Could Be Exposed -

The inactive E.H. Glass County Landfill site and the adjacent properties are privately owned. No one lives on the properties. The remnants of a dwelling are present on the property, but it is not known when persons may have lived in the dwelling. It may have been prior to waste disposal on the property. There were no environmental data gathered on the property prior to the studies evaluated in this report.

The health consultation process followed for this report considered how persons can be exposed to (come into contact with) the substances and chemicals detected in the environmental samples collected on the property. Likely exposure scenarios were evaluated for both children and adults. The exposure of children is of particular concern because children may be at a greater risk of harmful health effects than adults when exposed to some substances. Children are more likely to be exposed to contaminants in the environment because they play outdoors, have more “hand-to-mouth” activity and have higher inhalation (breathing) rates than adults. They are also smaller, resulting in higher doses (concentration of chemical per body weight). If toxic exposures occur during critical growth stages, the developing body systems of children can sustain permanent damage.

We identified “trespassing” and “recreational” activities as the likely exposure scenarios for this property. DENR observed evidence of trespassing during their activities at the property. We also considered activities such as children playing in the stream on the

property and having contact with the surface water and sediment. We did not include activities associated with remediation work.

The Evaluation Process -

The concentration of each substance or chemical detected in the environmental samples collected on the property in the groundwater, surface water, sediment and gas/vapor samples were screened for further evaluation using health-based “comparison values” (CVs) prepared by the Agency for Toxic Substances and Disease Registry (ATSDR 2012). If an ATSDR comparison value is not available for a chemical an alternative health-based source is sought, such as the U.S. Environmental Protection Agency’s (EPA) Regional Screening Levels (RSL, EPA 2012) or the Integrated Risk Information System (IRIS). Substances or chemicals detected at concentrations greater than comparison values do not indicate harm, but indicate the need for additional investigation to determine if harm is possible to persons that may inhale (breathe), ingest (swallow), or have dermal (skin) contact with these chemicals.

Site-specific exposure dose estimates are calculated for substances or chemicals detected at concentrations exceeding the comparison values. An exposure dose is an estimate of the amount of a substance a person may come into contact with in the environment over a specific time period, expressed relative to body weight. The exposure dose estimate is then compared to ATSDR’s minimum risk levels (“MRLs”). MRLs are health-based dose values used to identify when the exposure concentration, frequency and route (ingestion, inhalation, dermal) of exposure may lead to concentrations of the chemical in the body high enough to potentially cause non-cancer adverse health effects. Calculated dose estimates that exceed MRLs do not necessarily mean people will be harmed, but indicate the need for a case-by-case evaluation of the calculated dose estimates to health study data.

Health study data relates dose and the length and route of exposure to specific adverse health effects. Available health study data may include human or animal studies. N.C. DPH preferentially uses human study data when it is available and compares the site-specific dose estimates against sensitive health endpoints. This comparison is used to judge the likelihood of non-cancer illness from the chemicals detected on the site.

Potential health risks associated with substances identified as suspect or known to cause cancer in humans (“carcinogens”) are evaluated by calculating an estimated increased cancer risk. The increased cancer risk is calculated from the site-specific dose estimate and the substance-specific cancer potency factor developed by ATSDR or U.S. EPA. The term “increased cancer risk” represents the risk in addition to the “background cancer risk”. In North Carolina, approximately 1 out of every 2 men (50%) and 1 out of every 3 women (33%) (about 40% for the combined N.C. population) will be diagnosed with cancer from a variety of causes in their life-time. This is referred to as the “background cancer risk”. The estimated increased cancer risk is not a prediction that cancer will occur, but represents the highest probability (or chance) of additional cancers. The actual additional risk may be much lower, or there may be no additional

risk. A “one-in-a-thousand” increased cancer risk (“1/1,000” or “ 1×10^{-3} ” increased cancer risk) represents:

In 1,000 people exposed to the cancer-causing substance one additional person may develop cancer above the background number of cancer cases (40% or 400 expected “background” cases of cancer for every 1,000 people).

400 “background” cancers + 1 “additional cancer” =
401 cancers in 1000 exposed persons

DISCUSSION OF THE DATA

Consideration of Site-Specific Exposure Scenarios -

The surface water and sediment data were considered for “incidental ingestion” exposures, such as may occur when children are playing, wading or swimming in the stream. Exposure factors for children 1 to 6 years of age were used because children of this age range will have the highest calculated dose (the highest internal concentration relative to their weight) and represent the greatest potential for health risks for all age groups (1 year through adult). The exposure factors used for the evaluations are summarized in Appendix Table 1. Values selected for the amount of water and sediment ingested while playing are based on surveys of exposure data collected by the U.S. EPA (EPA 2011).

Gas (vapor) sample data were compared to ATSDR’s air comparison values for inhalation (breathing) exposures. Short-term exposure comparison values (“acute” CVs) were used for screening since the likely exposure scenario is for periods of minutes to several hours at less than a daily frequency. If short-term (acute) comparison values were not available, an alternative value was selected.

Health Effects Summary -

The following discussions summarize the environmental analytical data, exposure estimates and potential health-effect evaluations for each environmental medium (water, sediment, air/gas).

Groundwater –

The detection of 11 metals, sulfate, ammonia nitrogen, and 9 organic compounds (1 semi-volatile and 8 volatile chemicals) were reported for shallow groundwater samples collected in 2010. Six of the metals (arsenic, chromium, copper, lead, manganese, iron), sulfate and 3 volatile organic compounds (1,1-dichloroethane, 1,2-dichloroethane, vinyl chloride) were detected at concentrations exceeding health comparison values (CVs). Appendix Table 2 summarizes the number of detections, number of detections exceeding CVs, and the CVs. One ($21 \mu\text{g/L}^1$) of the 11 detections of lead was the only

¹ $\mu\text{g/L}$ = micrograms per liter (often referred to as “parts per billion”)

detected substance that exceeded a drinking water regulatory level (15 µg/L lead MCL²). Of the detected substances arsenic and vinyl chloride are classified as “known human carcinogens” and 1,2-dichloroethane (1,2-DCA) as a “probable human carcinogen” by the U.S. EPA and the National Toxicology Program (NTP). None of the arsenic, vinyl chloride or 1,2-DCA detections exceeded their MCL drinking water regulatory limit.

In addition to the substances listed in Table 2, there were 57 “tentatively identified (organic) compounds (TICs)”³ detected in 15 groundwater samples that could not be identified or quantified with certainty due to limitations of the analytical methods. The estimated concentrations of these compounds ranged from 1 to 111 µg/L. Health comparison values are not available for the tentatively identified compounds. The tentatively identified organic compounds are not naturally-occurring chemicals expected to be in the groundwater.

The groundwater was not evaluated as a primary drinking water source. Based on information supplied by Guilford County Health Department it is unlikely that groundwater in the area was used, or used for any length of time, as a drinking water source. The area was developed from farmland to residential properties in 1955. At approximately the same time the land was annexed and provided municipal water (DPH 2009). The E.H. Glass County Landfill accepted wastes from 1965 to 1973. We do not know when contaminants may have first appeared in the groundwater and what the concentrations may have been over the period since they first appeared.

DENR has identified they will likely negotiate land-use restrictions that include no use of groundwaters on the property as a drinking water source. DPH supports use restrictions on the groundwater because of the number and concentration of organic compounds and carcinogens identified in the groundwater samples. In addition, DPH recommends not using the groundwater for purposes that may involve direct skin contact or breathing chemicals that move from the water into the air (such as for swimming pools, showering or bathing, watering lawns). Treatment of the water to remove these chemicals, and confirmation of the effective removal, would eliminate DPH’s concerns with dermal or ingestion exposures.

Surface water –

Surface water samples were collected at 12 locations on the property in May 2011. One sample was collected from each of the 2 ponds and the remaining 10 samples were collected in the unnamed stream that runs across the southern end of the southeastern adjacent property to the waste disposal area. Seven metals, nitrate,

² The **MCL** (maximum contaminant level) is EPA’s enforceable drinking water standard presented as the highest level of contaminant that is allowed in drinking water by law. **MCLGs** (maximum contaminant level goal) are EPA’s value for the level of contaminant in drinking water below which there is no known or expected risks to health, MCLGs allow for a margin of safety. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

³ **Tentatively Identified Compounds** (TICs) are a tool used by scientists to characterize hazardous sites. TICs are unknown chemicals observed in the analysis that are not on the “Target Compound List” and that have not been compared to a known standard. The identification is made by comparing the sample analysis to a software “library” of chemicals and is not considered “absolute” or “confirmed”. The reported concentration for a TIC is always an estimate. Because of the uncertainty of the identification of the TIC the interpretation of these results is difficult. <http://www.epa.gov/region3/esc/qa/pdf/tics.pdf>

sulfate and ammonia nitrogen were detected. The metals arsenic and manganese were the only substances detected at concentrations greater than comparison values. The single arsenic detection did not exceed the drinking water regulatory level (10 µg/L MCL). Appendix Table 3 summarizes the substances detected in the surface water and those that exceeded comparison values. Fifteen (15) "tentatively identified" semi-volatile organic compounds (SVOCs) were also detected.

Site-specific surface water incidental ingestion exposure dose estimates for children (1-6 years of age) for the metals arsenic and manganese were less than their MRL values. Arsenic is classified as a "known human carcinogen" by EPA and the National Toxicology Program (NTP). The increased cancer risk estimate for children was less than 1 in a million ($<1 \times 10^{-6}$). Adverse health effects are not indicated for arsenic or manganese. The dose, health guideline values and arsenic cancer risk are summarized in Appendix Table 8.

The tentatively identified organic compounds may be an indication that the surface waters on the property are being impacted by chemicals moving from the waste disposal area into the shallow groundwater and ultimately discharging to the surface waters. Two of the VOCs and several of the tentatively identified organic compounds reported in the groundwater were also reported in the surface water.

The estimated concentrations of the tentatively identified SVOCs ranged from 1 to 5 µg/L. These chemicals could not be identified or quantified with certainty due to limitations of the analytical methods. The information is not available to determine the potential for adverse health effects associated with incidental ingestion or dermal contact to the tentatively identified organic compounds. Because of this uncertainty, DPH recommends that children or persons with skin sensitivities be discouraged from having contact with the surface waters on the property.

Sediment –

Surface sediment samples were collected at 13 locations on the property in May 2011. One surface sediment sample was collected from each of the 2 ponds and the remaining 11 samples were collected in the unnamed stream. Fourteen metals, sulfate, 5 volatile organic compounds (VOCs) and 2 polynuclear aromatic hydrocarbons (PAHs) were detected. The metals arsenic and thallium were the only sediment detections at concentrations greater than comparison values. Arsenic and thallium dose estimates were calculated for incidental ingestion exposures to children. Sediment detections were compared to soil comparison values since there are no sediment-specific values. The site-specific dose estimates are less than the soil MRL values (Appendix Table 8). Arsenic is classified as a "known human carcinogen" by EPA and NTP. The increased cancer risk estimate for children exposed for up to 6 years through incidental sediment ingestion is less than 1 in a million ($<1 \times 10^{-6}$). The combined increased cancer risk for incidental ingestion by children of the surface water and sediment is also less than 1 in a million ($<1 \times 10^{-6}$). Adverse health effects are not indicated for arsenic or thallium.

Four tentatively identified volatile organic compounds (VOCs) and 44 tentatively identified semi-volatile organic compounds (SVOCs) were reported in the sediment. Health comparison values are not available for the tentatively identified organic compounds. The information is not available to determine the potential for adverse health effects associated with incidental ingestion or dermal contact to the tentatively identified organic compounds. Because of this uncertainty, DPH recommends that children or persons with skin sensitivities be discouraged from having contact with the contaminated sediments on the property.

Landfill gases, surface-level survey -

No landfill gases were detected in an above-ground survey conducted above the areas identified as waste disposal areas A and B (Figure 1). The survey was conducted over 4 days in October 2010 using field instruments capable of detecting methane, hydrogen sulfide, mercury vapors, and non-chemical-specific detections of organic compound vapors. Instrument readings were taken at 6 inches above ground level over the undisturbed soil on a 100-foot grid pattern. A total of 162 readings were recorded. All instrument readings were indicated to be at background concentrations. No detections of methane, carbon dioxide, hydrogen sulfide or mercury were recorded, indicating that the landfill gases were not breaking through the intact soil layer.

The above-ground survey indicates that persons are not exposed to landfill gases as long as a sufficient undisturbed layer of soil covers the waste disposal. DENR has identified that they will likely negotiate land-use restrictions for the properties to include a minimum of 2 feet of clean soil (the landfill "cap") be placed over the waste disposal area with no disturbance of the cap be allowed without prior DENR approval. DPH supports the land-use restriction and a recommendation that a clean soil cap be required to cover the waste disposal areas, as well a width of area beyond the perimeter of the disposal areas to provide an appropriate safety margin. The depth of the soil cap and width of the cap around the perimeter should be based on appropriate engineering practices as specified by DENR and allow for an appropriate margin of safety to protect public health.

Landfill gases, sub-surface survey –

Sub-surface landfill gas readings were taken at 25 locations in and adjacent to the waste disposal area on 4 occasions in May, July and September 2011. Landfill "gas probes" (hollow tubes) were driven to a depth at least 5 feet below ground surface (bgs) and 2 feet above the top of the groundwater. The total depths of the probes ranged from 8-12 feet bgs. The gas samples were collected inside and adjacent to the waste disposal area, in an area where the property owner would like to place a building. Two of the sample locations were inside the perimeter of the waste disposal area (at the northeast corner) and the remaining 23 were within approximately 150 feet of perimeter of the waste disposal area. The approximate location of the sub-surface gas probes are noted on Figure 1. The gas readings were taken with field instruments capable of detecting methane, hydrogen sulfide, mercury vapors, and non-chemical-specific detections of volatile organic compounds. The field instruments detected methane, hydrogen sulfide, mercury vapors and volatile organic compounds. The sub-surface

gas data is summarized in Appendix Table 5. Persons are not exposed to these gases under current site conditions of an intact soil cap over the waste disposal area. Future exposure to sub-surface gases can be eliminated by land-use restrictions that include maintenance of an intact soil cap over the waste disposal area and a suitable width buffer around the waste disposal area.

Summa canister sub-surface gas samples -

A total of 8 “Summa” canister sub-surface vapor samples were collected from the landfill gas probes in May and July 2011. Three samples were collected in May (1 location in duplicate). Four samples were collected in July (1 location in duplicate) and included one of the locations sampled in May. Two of the sample locations were inside the waste disposal area and the other 2 were placed east of the waste disposal area to assess landfill gas migration. All Summa canister samples were sent for laboratory analysis for 68 volatile organic compounds (VOCs).

Thirty (30) different VOCs were detected in the Summa canister samples. Five of the detected VOCs (benzene, chloroform, 1,1-dichloroethane, trichloroethylene and vinyl chloride) are known or suspected human carcinogens and were detected at concentrations greater than their cancer screening level (ATSDR’s “CREG”, cancer risk evaluation guide). Tetrachloroethylene, an EPA “likely human carcinogen” (ATSDR 2012), was detected at a concentration less than its cancer screening level. Two (2) additional VOCs were detected at concentrations greater than their non-cancer acute exposure screening values (dichlorodifluoromethane and 1,1-dichloroethane). The data is summarized in Appendix Table 6. Area residents are not exposed to these gases under current site conditions. While the data indicates that there is no exposure to these chemicals as long as the surface soil layer (the “cap”) remains intact, these chemicals can potentially be harmful if the surface is disturbed. Persons are not exposed to these gases under current site conditions of an intact soil cap over the waste disposal area. Future exposure to sub-surface gases can be eliminated by land-use restrictions that include maintenance of an intact soil cap over the waste disposal area and a suitable width buffer around the waste disposal area.

Laboratory mercury analysis of sub-surface gas samples -

Five sub-surface gas samples were collected for laboratory analysis to better define the previously measured and highly variable sub-surface mercury levels collected with the field instruments. Eight-hour sub-surface gas samples were collected from 5 landfill gas probe locations in September 2011 and sent to a laboratory for mercury analysis. Two of the sample locations were in the waste disposal area. The laboratory mercury data is summarized Appendix Table 7. There were no mercury detections, however the sample reporting limits were greater than ATSDR’s mercury inhalation chronic comparison value. While no mercury was detected in the laboratory analyses and greater confidence can be placed on the laboratory analysis relative to the field-instrument measurements, some uncertainty remains since the reporting limits are greater than the comparison values.

Gas sample data summary –

The sub-surface gas samples collected with landfill gas probes and analyzed in the laboratory indicate that volatile organic compounds (VOCs) are present in the sub-surface of the waste disposal area. The surface survey (readings collected 6 inches above ground) indicates that these gases are not escaping at concentrations that can be detected with field instruments through the intact soil layer. Disturbing the soil, particularly in the waste disposal area, may result in the release of the gases to the surface to where they can be inhaled by persons in the immediate vicinity. Building structures in the area over, or adjacent to, the waste disposal area may alter the location of these gases. Appropriate precautions are recommended during site activities (such as excavation or site investigations) to prevent persons from being exposed to these sub-surface gases. If the property is to be developed, appropriate precautions should be taken to prevent persons from being exposed to the sub-surface gases. DPH agrees with DENR's proposed recommendation of a soil cap placed over the waste disposal area and the implementation of a monitoring schedule to confirm that sub-surface gases are not escaping.

CONCLUSIONS AND RECOMMENDATIONS

Based on review of the environmental data the N.C. DPH concludes:

1. *There is no indication that people have been harmed by ingestion of groundwater on the property as a primary drinking water source.*

Groundwater in the vicinity is not currently used as a drinking water source. Records provided by the county indicate that it is unlikely that private wells were in use in the area during the time the landfill began taking waste.

2. Chemicals may be moving from the sub-surface waste disposal areas into the shallow groundwater and are being discharged into the stream. Chemicals found in the groundwater were also detected in the surface water in the unnamed stream flowing through the property adjacent to the landfill. These chemicals would not be expected to occur naturally in the groundwater or surface water.
3. *Adverse health effects were not indicated for children that play in the stream and accidentally ingest small amounts of the water or sediment for the compounds that could be identified in the stream water and sediments.*

(This assessment is based on children 1-6 years of age playing in the stream 6 hours per week, for 7 months of the year.) There is no way to assess the potential health effects of ingestion or contact with the number of unidentified chemicals that were detected in the surface water and sediment.

4. The appropriate information is not available to assess the potential health effects of ingestion or direct contact with the unidentified chemicals ("tentatively identified chemicals") reported in the surface water and sediment. The analyses completed to date did not confirm the identity and concentration of these chemicals, and health effect data is not available for these chemicals.

5. *People are not likely to have been exposed to gases from the landfill. Tests indicate that landfill gases/vapors present in the subsurface in and near the waste disposal areas are not escaping through the intact soil cover.*

Thirty (30) volatile organic compounds (VOCs) were detected in sub-surface gas samples taken in and adjacent to the waste disposal areas. Five of the VOCs (benzene, chloroform, 1,2-dichloroethane, trichloroethylene, vinyl chloride) are known or suspected human carcinogens and were detected in the sub-surface at concentrations greater than the cancer screening level (CREG). Three additional VOCs (dichlorodifluoromethane, 1,1-dichloroethane, tetrachloroethylene) were detected in the sub-surface at concentrations greater than non-cancer health screening levels for inhalation exposures.

Recommendations -

The environmental investigations conducted on the inactive E.H. Glass County Landfill site and the 2 associated adjacent properties were performed by DENR under the State's cooperative agreement program established to address pre-regulatory waste disposal sites. Under this agreement DENR provides investigative services to identify and remediate environmental risks on these sites in exchange for the property owners' agreement to DENR-specified land-use restrictions to prevent future harm to the environment or to human-health (DWM 2012a, DWM 2012b).

DENR has indicated the following negotiable remedies and land-use restrictions likely will be specified for the inactive landfill site and adjacent properties:

1. Placement of an soil cover ("cap") over the waste disposal area. A typical soil cover consists of a minimum of 2 feet of clean soil over the waste disposal area. Disturbance of the soil cover by excavation or penetration will be prohibited. Disturbance of the soil cover for surface structures such as parking lots or walking paths may be allowed with prior approval from DENR.
2. No enclosed structures are to be constructed over the waste disposal area. DENR will monitor for the migration of subsurface landfill gas from the waste disposal area for a minimum of 2 years. Indoor air monitoring will be conducted if DENR detects the migration of subsurface gas during the monitoring period and buildings are constructed within 100 feet of the waste disposal area.
3. To restrict the access and use of groundwater on the site. (In addition, a minimum 500 foot separation from the edge of the delineated waste disposal area and a drinking water supply well is required by state regulation 15A NCAC 02C .0107(J). Counties were given further authority to regulate water supply wells under GS 87-97.)

N.C. DPH recommends the following additional conditions to reduce the potential for adverse impacts to human health due to the chemicals associated with the inactive E.H. Glass County Landfill :

1. *Restrict use of the contaminated groundwater on the property as a source of water that would result in direct skin contact (such as for a swimming pool,*

showering or bathing), ingestion (such as a drinking water source or for watering vegetable or fruit plants) or inhalation (through activities such as washing dishes or laundry, or watering lawns).

Treatment of these waters to remove the organic chemical contaminants would eliminate this concern.

2. *Prevent children from having direct contact with the surface waters and sediments on the property.*
Restrict the potential for children to be exposed to the surface water or sediments during recreational activities such as playing in the stream/ponds.
3. *Implement land use restrictions that prevent excavation and disturbance of the soil cap as long as the waste remains in place.*
4. *Prevent access to the waste disposal areas and surface water and sediment areas if the property is not re-developed or the site control activities identified above are not implemented or maintained.*
5. *If the subsurface landfill gas monitoring detects gas levels that exceed U.S. EPA or NC indoor air levels monitor indoor air quality of enclosed structures constructed on the property within 100 yards of the waste disposal area for volatile organic compounds (VOCs), methane and hydrogen sulfide on an every 4 months schedule for 1 year after construction. As an alternative, implement engineering controls to prevent entry of subsurface vapors into the enclosed structures.*
6. *Adequate training and protective measure should be implemented to prevent construction or remediation workers from being exposed to surface or sub-surface chemical and physical hazards that exist on the property.*
7. *Test any new or existing drinking water wells within one-half mile of the inactive E.H. Glass County Landfill for metals (arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, zinc), VOCs + TICs, sulfate, ammonia nitrogen, pH, and conductivity. If there are detections of VOCs also test for SVOCs + TICs.*

Limitations of the Health Consultation process -

All studies include uncertainties associated with the available historical and environmental data, as well as what is known about the potential health effects associated with identified chemicals. The limitations specific to this Health Consultation include:

1. A significant number of “tentatively identified” organic compounds (TICs) were identified in the groundwater, surface water and sediment samples collected in 2010 and 2011. It was not possible to identify potential health effects related to exposure to these compounds since neither the identification or concentration of these chemicals has been confirmed. Additionally, based on the unconfirmed identifications health effects data does not exist for most of these chemicals to determine if they could present a health hazard.

2. The data does not exist to determine potential health effects associated with dermal (skin) contact with the chemicals found in the surface water and sediments. Some chemicals, particularly some organic compounds, can be absorbed through the skin.
3. The reporting limits of the 8-hour subsurface gas laboratory mercury analyses were greater than the mercury inhalation comparison values.
4. It is not known if the concentrations of chemicals reported in this study are representative of concentrations present on the property since contamination first made its way into the groundwater, surface water, sediment and sub-surface air. N.C. DPH's conclusions and recommendations are only relevant to the available data and may not be representative of exposure conditions at other times.
5. Each person's general health, lifestyle choices, genetic make-up and exposure to other chemicals will impact the potential for harmful effects a person may experience when exposed to environmental contaminants. While highly health protective methods were used for this study these factors may result in unique sensitivities for some individuals that are not predicted by the methods used in this evaluation.

APPENDIX

Tables, Figures and References

Table 1. Exposure factors used for exposure dose calculations of chemicals and substances detected on the inactive E.H. Glass County Landfill site. Source: EPA 2011

Exposure component	Child (1-6 years of age)	Adult
Incidental ingestion of stream water while swimming/wading	49 mL (1.7 oz) water ingested per hour 200 mg (0.007 oz) sediment ingested per event 3 events per week 2 hours per event 7 months per year (91 total days per year) 6 years total	NA
Body weight	17 kg (37.5 lbs)	80 kg (176 lbs)
Life-time	NA	78 years

kg = kilogram; lbs = pounds; mg = milligram; mL = milliliter; NA = not applicable; oz = ounce

Table 2. Summary of groundwater detections and comparison values. Samples collected in 2010 at 15 locations on the inactive E.H. Glass County Landfill site. Bold/shaded values exceed CV. Data source: CDP 2011.

Chemical or substance detected	No. of detections greater than CV / no. detections ¹	Range of concentrations greater than CVs (µg/L)	Health-based CV (µg/L)	CV type / source
Nitrate	0/8	NA	20,000	EPA RMEG
Sulfate	1/13	740,000	500,000	EPA-DWA
Ammonia nitrogen	0/3	NA	30,000	EPA LTHA
Metals				
Arsenic	5/5	1.3 – 9.8	0.02 3, 10 10, 0	CREG Chronic EMEG (child, adult) MCL, MCLG
Beryllium	0/6	NA	4	MCL/MCLG
Cadmium	0/2	NA	1, 4	Chronic EMEG (child, adult)
Chromium	9/17	12 – 99	10, 40 100	Chronic EMEG (child, adult) MCL
Copper	2/17	120 – 230	100, 400 1300	Interm. NCA (child, adult) MCL
Lead	1/11	21	15 0	MCL AL MCLG
Manganese	10/17	300 – 8,000	300	LTHA, EPA HA
Nickel	0/17	NA	100	LTHA
Selenium	0/2	NA	50	LTHA / MCLG
Zinc	0/16	NA	2,000	LTHA
Iron	4/17	34,000 – 180,000	26,000 300	EPA RSL NC aesthetics
Volatile Organic Compounds (VOCs)				
Acetone	0/1	NA	9,000, 30,000	EPA RMEG (child, adult)
Chlorobenzene	0/7	NA	100	LTHA
Chloroethane	0/1	NA	21,000	EPA RSL
1,4-Dichlorobenzene	0/1	NA	75	LTHA
1,1-Dichloroethane	1/1	46	12	EPA RSL CA
1,2-Dichloroethane	1/1	2.2	0.4 5, 0	CREG MCL, MCLG
cis-1,2,-Dichloroethene	0/1	NA	20, 70	RMEG
Vinyl chloride	1/1	1.7	0.02 2, 0	CREG MCL, MCLG
Semi-volatile Organic Compounds (SVOCs)				
Bis(2-ethylhexyl)phthalate	0/1	NA	2	CREG
Tentatively Identified Organic Compounds (TICs)				
TICs	57 detected	All detections: 1 – 111	NA	NA

¹ Number of detections greater than health comparison value / total number of detections
AL (Action Level) = The concentration of a contaminant, which, if exceeded, triggers a treatment or other requirement, µg/L = micrograms per liter; ATSDR = Agency for Toxic Substances and Disease Registry; CREG = Cancer Risk Evaluation Guide, ATSDR CV; CV = comparison value; ATSDR health-based screening value; EMEG = Environmental Media Evaluation Guide, ATSDR CV; EPA = U.S. Environmental Protection Agency;

Table 2 notes continued on the next page -

Table 2 notes continued from the previous page -

EPA-DWA = EPA drinking water advisory, recommended non-regulatory level;
 Interm. EMEG = Intermediate EMEG, ATSDR CV; LTHA = Lifetime Health Advisory for Drinking Water, EPA; MCL = Maximum Contaminant Level for drinking water, EPA regulatory value; MCLG = Maximum Contaminant Level goal for drinking water, EPA non-regulatory value; NA = not applicable; NC aesthetics = NC non-regulatory value; no. = number; RMEG = Reference Dose Media Evaluation Guide; RSL = EPA Regional Screening Levels

Table 3. Summary of surface water detections and comparison values. Samples collected in 2010 at 12 locations in the 2 ponds and unnamed stream on the inactive E.H. Glass County Landfill site. Bold/shaded values exceed CV. Data source: RI 2011.

Chemical or substance detected	No. detections greater than CV / no. detections	Range of concentrations greater than CVs (µg/L)	Health-based CV (µg/L)	CV type / source
Nitrate	0/9	NA	20,000	EPA RMEG
Sulfate	0/10	NA	500,000	EPA
Ammonia nitrogen	0/8	NA	30,000	EPA LTHA
Metals				
Arsenic	1/1	1.0	0.02 3, 10 10, 0	CREG Chronic EMEG MCL, MCLG
Copper	0/2	NA	100, 400	Interm. EMEG (child, adult)
Lead	0/4	NA	15	MCL
Manganese	6/12	300 – 980	300	LTHA, EPA HA
Nickel	0/7	NA	100	LTHA
Selenium	0/2	NA	50	LTHA / MCLG
Iron	0/12	NA	26,000	EPA RSL
Semi-volatile Organic Compounds (SVOCs)				
Tentatively identified organic compounds	15 detected	1 - 5	NA	NA

µg/L = micrograms per liter; ATSDR = Agency for Toxic Substances and Disease Registry; CREG = Cancer Risk Evaluation Guide, ATSDR CV; CV = comparison value, ATSDR health-based screening value; EMEG = Environmental Media Evaluation Guide, ATSDR CV; EPA = U.S. Environmental Protection Agency; HA = health advisory, a non-regulatory value; Interm. EMEG = Intermediate EMEG, ATSDR CV; LTHA = Lifetime Health Advisory for Drinking Water, EPA; MCL = Maximum Contaminant Level for drinking water, EPA regulatory value; MCLG = Maximum Contaminant Level goal for drinking water, EPA non-regulatory value; NA = not applicable; no. = number; RMEG = Reference Dose Media Evaluation Guide; RSL = EPA Regional Screening Levels

Table 4. Summary of detections and comparison values for sediments. Samples collected at 13 locations in the 2 ponds and unnamed stream in 2011 on the inactive E.H. Glass County Landfill site. Bold/shaded values exceed CV. Data source: RI 2011.

Chemical / substance detected	No. detections greater than CV / no. detections ¹	Range of concentrations greater than CV (mg/kg)	Health-based comparison value (mg/kg)	CV type / source
Sulfate	0/1	NA	NA	NA
Volatile Organic Compounds (VOCs)				
Acetone	0/1	NA	100,000, 1,000,000	Interm. EMEG (child, adult)
cis-1,2-Dichloroethene	0/1	NA	20,000, 200,000	Interm. EMEG (child, adult)
2-Butanone	0/1	NA	30,000, 400,000	EPA RMEG (child, adult)
Tetrachloroethene	0/1	NA	330	CREG
Toluene	0/1	NA	1,000, 10,000	Interm. EMEG (child, adult)
Polynuclear Aromatic Compounds (PAHs)				
Fluoranthene	0/1	NA	20,000, 300,000	Interm. EMEG (child, adult)
Phenanthrene	0/1	NA	NA	NA
Metals				
Mercury	0/1	NA	5, 70	EPA RMEG (child, adult)
Arsenic	1/1	1.6	0.5	CREG
Beryllium	0/1	NA	100, 1000	Chronic EMEG (child, adult)
Cadmium	0/1	NA	30, 400	Interm. EMEG (child, adult)
Chromium	0/13	NA	80,000, 1,000,000	EPA RMEG (child, adult)
Copper	0/12	NA	500, 7000	Interm. EMEG (child, adult)
Iron	0/13	NA	55,000	EPA RSL
Lead	0/13	NA	400	EPA RSL
Manganese	0/13	NA	3000, 40,000	EPA RMEG (child, adult)
Nickel	0/13	NA	1000, 10,000	EPA RMEG (child, adult)
Selenium	0/6	NA	300, 4000	Chronic EMEG (child, adult)
Silver	0/3	NA	300, 4000	EPA RMEG (child, adult)
Thallium	1/5	5.0	4, 60	EPA RMEG (child, adult)
Zinc	0/13	NA	20,000, 200,000	Interm. EMEG (child, adult)
Tentatively Identified Compounds (TICs)				
Volatile organic compounds (VOC) TICs	4 detected in 4 samples	Estimated concentration range 0.005 – 0.015 mg/kg		
Semi-volatile organic compounds (SVOCs) TICs	44 detected in 10 samples	Estimated concentration range 0.030 – 1.90 mg/kg		

Table 4 notes continued on the next page -

Table 4 notes continued from the previous page –

¹ Number of detections greater than health comparison value / total number of detections
 AL (Action Level) = the concentration of a contaminant, which, if exceeded, triggers a treatment or other requirement; ATSDR = Agency for Toxic Substances and Disease Registry; Chronic EMEG = Chronic (exposure of more than 364 days) Environmental Media Evaluation Guide, ATSDR CV; CREG = Cancer Risk Evaluation Guide, ATSDR CV; CV = comparison value, ATSDR health-based screening value; EMEG = Environmental Media Evaluation Guide, ATSDR CV; EPA = U.S. Environmental Protection Agency; EPA-DWA = EPA drinking water advisory, recommended non-regulatory level; Interm. EMEG = Intermediate (exposure of 14 to 365 days) Environmental Media Evaluation Guide, ATSDR CV; LTHA = Lifetime Health Advisory for Drinking Water, EPA; MCL = Maximum Contaminant Level for drinking water, EPA regulatory value; MCLG = Maximum Contaminant Level goal for drinking water, EPA non-regulatory value; mg/kg = milligrams per kilogram; NA = not applicable; NC aesthetics = NC non-regulatory value; no. = number; RMEG = Reference Dose Media Evaluation Guide; RSL = EPA Regional Screening Levels; TIC = Tentatively Identified Compounds

Table 5. Summary of sub-surface landfill gas data. Includes data for 25 gas probes inserted into the subsurface and field instrument readings collected on 4 occasions in May through September 2011 on the inactive E.H. Glass County Landfill site. Data source: CDP 2011.

Gas detected	No. detections greater than CV / no. detections ¹	Range of concentrations greater than CVs	Health-based CV	CV type / source
Methane	50/50	0.2 – 20.3%	0.1%	OSHA TLV ²
Hydrogen sulfide	8/80	100 – 2000 ppb-v	70 ppb-v	Acute EMEG/MRL
Mercury vapor	60/60	0.8 - 178.9 µg/m ³	0.2 µg/m ³ 0.3 µg/m ³	Chronic EMEG/MRL EPA RSL-NCA ³

¹ Number of detections greater than health comparison value / total number of detections

² OSHA TLV = Occupational Safety and Health Administration threshold limit value; a TLV is the level of a chemical to which it is believed a worker can be exposed day after day for a working lifetime without adverse health effects

³ Values for elemental mercury vapor

µg/m³ = micrograms per cubic meter; ATSDR = Agency for Toxic Substances and Disease Registry; CV = comparison value, ATSDR health-based screening value; Acute EMEG = Acute (exposure of less than 14 days) Environmental Media Evaluation Guide, ATSDR CV; Chronic EMEG = Chronic (exposure of more than 364 days) Environmental Media Evaluation Guide, ATSDR CV; EPA = U.S. Environmental Protection Agency; MRL = Minimum Risk Level, ATSDR health guideline value; no. = number; ppb-v = parts per billion-volume; RSL-NCA = EPA regional screening level non-cancer effect level

Table 6. Summary of sub-surface landfill gas probe laboratory volatile organic analyses. Data collected in Summa canisters in May and July 2011 on the inactive E.H. Glass County Landfill site. Bold/shaded values exceed CV. Source RI 2011.

Chemical / substance detected	No. detections greater than CV / no. detections ¹	Range of concentrations greater than CVs, ppb-v	Health-based comparison value, ppb-v	CV type / source
Acetone	0/3	NA	30,000	Acute EMEG
Benzene	1/1	57 µg/m³	1.6 µg/m ³ 130 µg/m ³	EPA RSL-CA EPA RSL-NCA
2-Butanone (methyl ethyl ketone)	0/2	NA	2000	EPA RfC
Carbon disulfide	0/3	NA	3100 µg/m ³	EPA RSL-NCA
Chloroethane	0/2	NA	20,000	Acute EMEG
Chloroform	1/3	730 µg/m³ 4.2 ppb-v	0.53 µg/m ³ 100	EPA RSL-CA Acute EMEG
Chloromethane	0/2	NA	400	Acute EMEG
Cyclohexane	0/2	NA	6000 µg/m ³	EPA RfC
1,3-Dichlorobenzene	0/1	NA	NA	NA
1,4-Dichlorobenzene	0/1	NA	2000	Acute EMEG
Dichlorodifluoromethane	1/4	1500 µg/m³	440 µg/m ³	EPA RSL-NCA
1,1-Dichloroethane	1/1	52 µg/m³	7.7 µg/m ³	EPA RSL-CA
cis-1,2-Dichloroethene	0/1	NA	200	Acute EMEG (for trans-1,2-dichloroethene)
1,2-Dichloro-tetrafluoroethane (freon 114)	0/3	NA	NA	NA
Ethanol	0/4	NA	NA	NA
Ethylbenzene	0/2	NA	5000	Acute EMEG
Heptane	0/2	NA	NA	NA
n-Hexane	0/4	NA	600	Chronic EMEG
Isopropylbenzene (cumene)	0/3	NA	80	EPA RfC
Methylene chloride	0/3	NA	600	Acute EMEG
2-Propanol (isopropanol)	0/1	NA	31,000 µg/m ³	EPA RSL-NCA
Tetrachloroethylene	2/2	2.7 – 12 µg/m³ 0.4-1.7 ppb-v	47 µg/m ³ 200 ppb-v	EPA RSL-CA Acute EMEG
Tetrahydrofuran	0/2	NA	2000 µg/m ³	EPA-IRIS
Toluene	0/3	NA	1000	Acute EMEG
Trichloroethylene	1/1	42 µg/m³ 7.8 ppb-v	3.0 µg/m ³ 0.37 ppb-v	EPA RSL-CA Chronic EMEG
Trichlorofluoromethane	0/4	NA	3100 µg/m ³	EPA RSL-NCA
1,2,4-Trimethylbenzene	0/1	NA	31 µg/m ³	EPA RSL-NCA
Vinyl chloride	3/3	4.6–7.5 µg/m³ 0.51-2.8 ppb-v	2.8 µg/m ³ 500 ppb-v	EPA RSL-CA Acute EMEG
<i>m,p</i> -Xylene	0/2	NA	2000	Acute EMEG
<i>o</i> -Xylene	0/2	NA		

Table 6 notes continued on the next page -

Table 6 notes continued from the previous page –

¹ Number of detections greater than health comparison value / total number of detections
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; ATSDR = Agency for Toxic Substances and Disease Registry; CV = comparison value, ATSDR health-based screening value; Acute EMEG = Acute (exposure of less than 14 days) Environmental Media Evaluation Guide, ATSDR CV; Chronic EMEG = Chronic (exposure of more than 364 days) Environmental Media Evaluation Guide, ATSDR CV; EPA = U.S. Environmental Protection Agency; Interm. EMEG = Intermediate EMEG, ATSDR CV; MRL = Minimum Risk Level, ATSDR health guideline value; NA = not applicable; no. = number; ppb-v = parts per billion-volume; RfC = EPA non-cancer reference concentration; RSL-CA = EPA regional screening level cancer effect level; RSL-NCA = EPA regional screening level non-cancer effect level

Table 7. Summary of mercury in subsurface air laboratory analysis data for landfill gas samples collected in September 2011 on the inactive E.H. Glass County Landfill site.

Number of samples	Mercury results	Reporting limit	Health comparison values ¹
5	All not detected	0.41 – 0.42 $\mu\text{g}/\text{m}^3$	0.2 $\mu\text{g}/\text{m}^3$ Chronic EMEG 0.3 $\mu\text{g}/\text{m}^3$ EPA RfC

¹ All available ATSDR and EPA health comparison values for mercury inhalation are listed. Both are for chronic daily inhalation of mercury.

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; ATSDR = Agency for Toxic Substances and Disease Registry; Chronic EMEG = Chronic (exposure of more than 364 days) Environmental Media Evaluation Guide, ATSDR CV; EPA = U.S. Environmental Protection Agency; Interm. EMEG = Intermediate EMEG, ATSDR CV; RfC = EPA non-cancer reference concentration

Table 8. Summary of E.H. Glass County Landfill site exposure dose estimates, health guideline values and increased cancer risk estimates for metals detected at concentrations greater than comparison values.

Chemical / substance	Estimated exposure dose ¹ , mg/kg/d	Non-cancer effect health guideline value (MRL), mg/kg/d	Cancer potency value (CSF) (unitless)	Estimated increased cancer risk	Estimated increased cancer risk qualitative descriptor
Surface water					
Arsenic	3.5e-06	5e-03	1.5	$<1 \times 10^{-6}$	no increase
Manganese	3.4e-03	5e-02	NA	NA	
Sediment					
Arsenic	4.7e-06	3e-04	1.5	$<1 \times 10^{-6}$	no increase
Thallium	1.5e-05	8e-05 ²	NA	NA	
Combined risk for surface water and sediment exposures					
Arsenic				$<1 \times 10^{-6}$	no increase

¹ Dose calculations for incidental ingestion to children using the maximum detected concentration

² Health value for chronic exposure (daily exposure for more than 1 year)

mg/kg/d = milligrams per kilogram per day; $<1 \times 10^{-6}$ = less than 1 in a million; ATSDR = Agency for Toxic Substances and Disease Registry; CSF = ATSDR cancer slope factor; NA = not applicable; MRL = Minimum Risk Level, ATSDR health guideline value

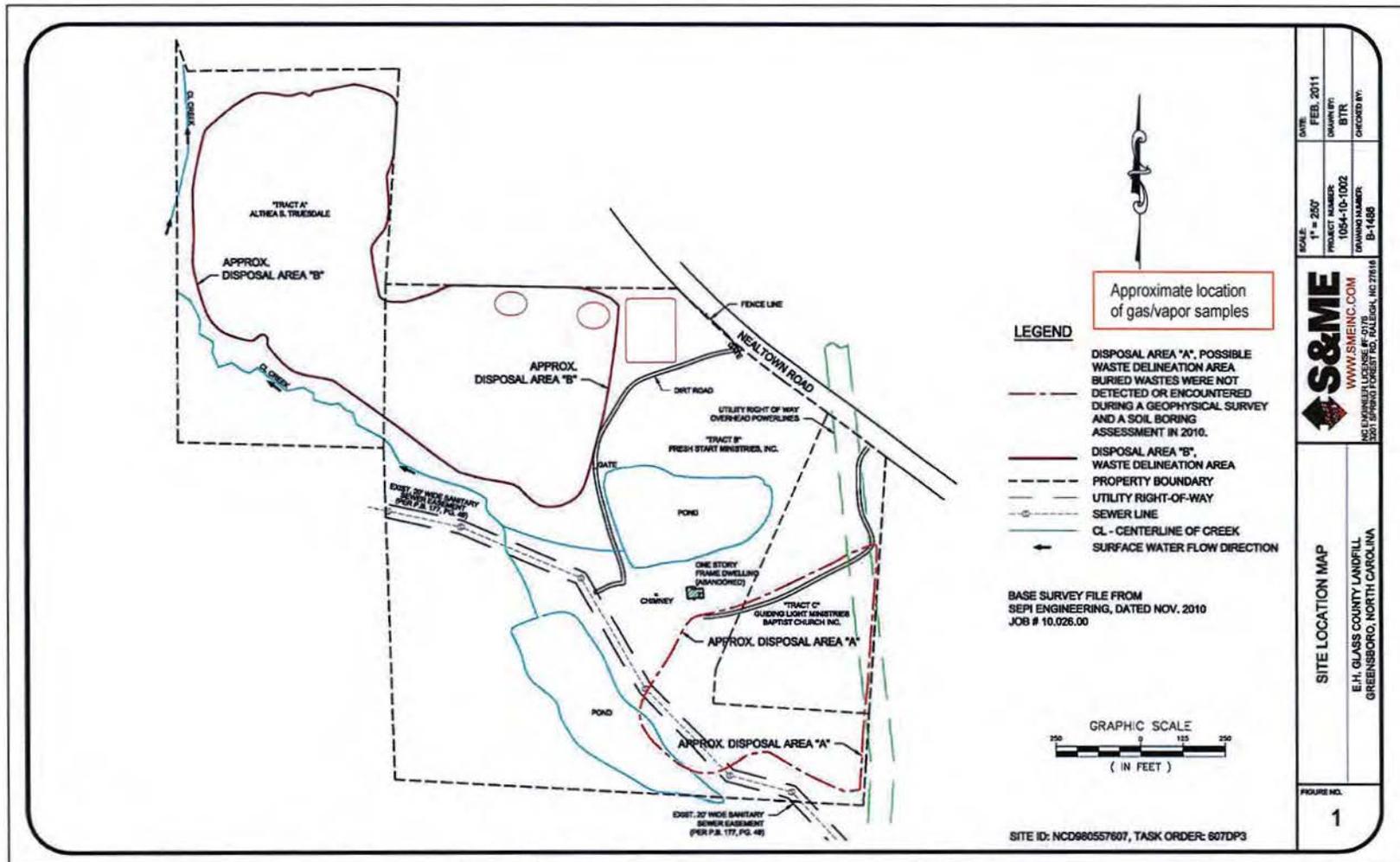


Figure 1. Site location map for the inactive E.H. Glass County Landfill. Delineated waste disposal areas, water features and areas of subsurface landfill gas sample collections are indicated. Source: CDP 2011.

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GREENSBORO

**CITY OF GREENSBORO
FOR IMMEDIATE RELEASE**

Contact: Phil Fleischmann
Phone: 336-373-3275

City outdoor pools and spraygrounds set to open Memorial Day weekend

GREENSBORO, NC -- (May 22, 2013) -- Greensboro Parks & Recreation's outdoor pools and spraygrounds will open to the public on Memorial Day weekend. Lindley, Peeler, Warnersville and Windsor outdoor pools will be open from 12 noon-5 pm on Saturday, May 25 through Monday, May 27. Pools will also be open on the weekend of June 1-2 from 12 noon-5 pm. All pools will operate on their regular summer schedule, beginning Saturday, June 8.

Summer pool programs will include Learn-to-Swim classes for youth, adaptive aquatics lessons for individuals of all abilities, water fitness programs for adults, and evening pool parties for teens as part of the new Summer Night Lights program.

Outdoor pool admission is \$1 per visit for children, ages 12 and under, and \$2 per visit for ages 13 years and over. Discount season passes are available. For more information, call 336-373-3275 or visit www.greensboro-nc.gov/pools.

The spraygrounds at Barber and Keeley parks will open for the summer on Saturday, May 25. Operational hours are Monday through Saturday from 11 am-6 pm, and Sundays from 1-6 pm.

To learn more about the year-round programs and facilities of Greensboro Parks & Recreation, call 336-373-2574 or visit www.greensboro-nc.gov/leisure. Greensboro Parks & Recreation is nationally-accredited and a three-time winner of the National Gold Medal Award for excellence in park and recreation management.

#

The City works with the community to improve the quality of life for residents through inclusion, diversity, and trust. As the seventh largest employer in Greensboro, the City has a professional staff of 2,800 employees, who maintain the values of honesty, integrity, stewardship, and respect. The City is governed by a council-manager form of government with a mayor and eight council members. For more information on the City, visit www.greensboro-nc.gov or call 336-373-CITY (2489).



May 24, 2013

**TO: Denise Turner Roth, City Manager
S. Mujeeb Shah-Khan, City Attorney**

FROM: Tom Carruthers, Assistant General Counsel

SUBJECT: General Assembly Update

The May 16, 2013 crossover deadline has passed. According to House and Senate rules, a bill or resolution must pass one chamber and have been received and read on the floor of the other chamber to survive the crossover deadline. These remaining bills may be considered this session and next session, which is year two of the biennium. The following specific types of legislation are exempt from this deadline: adjournment resolutions, legislation referred to Appropriations or Finance Committees, legislation that establishes election districts, and ratifying amendments to the US Constitution. The Director of Research of the General Assembly has published an exhaustive list of all bills which have survived the deadline. Based on this list, and our research, crossover has eliminated 5 of the 12 bills that incorporated the City's legislative agenda into specific bills. These are summarized below.

There remain various ways to revive legislation which has not met the crossover deadline. The most efficient method is to take an existing piece of legislation, such as Senate companion bill to a House bill which has met the deadline, gut the bill and place amended language in the bill incorporating the desired legislation. This typically requires support of the House or Senate leadership. This memo assumes this and other exceptions to the crossover rule will not be utilized.

Local Legislative Agenda

1. Jordan Lake.

SB 515, Nutrient Management Standards Reform Act, passed the Senate on May 15, 2013. It passed the first reading and was referred to the House Committee on the Environment. The amended version of this bill repealed the entire body of Jordan Lake regulations, and appropriated money to draft revised regulations to be considered during next session. It survived crossover.

2. MWBE/SBE & Revisions to City Charter Section 5.65 and 5.74.

HB 524, Greensboro Charter Amendments, passed the House unanimously on April 25th. It was referred to the Senate State and Local Government Committee. It survived crossover.

3. *Electronic Notice.*

Senate Bill 287, Notice Publication by Some Local Governments was received favorably by the House Judiciary Subcommittee B and was referred to the House Committee on Rules, Calendar and Operations. Similar House bills which applied statewide and to other local communities did not pass the House. This bill, at present, survived crossover and has been re-calendared for a House vote.

4. *Greensboro Firemen's Supplemental Retirement System Local Act Amendment.*

HB 347, Amend Greensboro Firefighter's Retirement, passed the House May 2nd and was referred to the Senate Committee on Pensions and Retirement. It survived crossover.

5. *Prohibition of Brown Bagging at Sexually Oriented Businesses.*

SB 470, No Beer/Wine if Permit Revoked or Suspended, passed the Senate on April 11th by a vote of 46 to 0. It is now before the House Committee on Commerce and Job Development, the Subcommittee on Alcoholic Beverage Control. It survived crossover.

6. *Breast Density Awareness.*

House Bill 467, Breast Density Notification and Awareness, passed the House on April 11th by a vote of 112 to 0. This bill now is before the Senate Committee on Health. It survived crossover.

7. *Revisions to City Charter Section 5.65 and 5.74.*

This legislation is attached to HB 524, discussed in paragraph 2 above. It survived crossover.

8. *Increase Funding for Greensboro Transit Authority ("GTA").*

HB 525 did not survive crossover.

9. *Housing Receivership.*

HB 227 did not survive crossover.

10. *DMV Registration Blocking for Unpaid Tickets.*

SB 227 did not survive crossover.

11. *ALS Awareness.*

HB 631 did not survive crossover crossover.

12. *Hold Harmless Resolution.*

HB373, and similar legislation, HB389/SB 307, did not survive crossover.

13. *Protect Municipal Revenue.*

No specific legislation was proposed by the City for this item. This legislative goal applies to the various bills proposing tax reform and the proposed North Carolina Budget. The proposed budget is addressed in SB402, which passed the Senate on May 23rd. Proposed House revisions are expected. These bills will not be summarized at this time.

Pertinent Legislation of Local Interest.

- SB211, Cities/Public Nuisance Notice.

Under present City Code and State Law, Cities must give notice by certified and regular mail and wait 10 days before entering any property to remedy nuisances such as dense vegetative growth and conditions that encourage rodents or mosquitoes to breed. These notice requirements can be cumbersome when property owners are repeat violators. This legislation would remedy this problem of repeated notice and appeal periods. SB 211 has passed the Senate and is pending before the House Committee on Government. It provides that if a homeowner has three nuisance violations within the previous calendar year, the City will only need to notify the owner once, before entering the property to abate all nuisances on a repeated basis for the next calendar year.

TDC



Current Public Records Requests Update May 17, 2013

Date Requested	Requestor	Subject	Status
1/16/2013	Eric Ginsburg	Socialist request Email Search - 141,954	Search 2 of 5 was completed (4/23/2013 & 5/24/13) and made available to requestor. Staff continuing to review emails..
2/8/2013	Eric Ginsburg	Palestine, Candlelight Vigil, Gaza Email Search - 120,215	Review is for significant number of emails. Three batches have been sent to the requestor. Staff is continuing to review emails.
2/18/2013	Billy Jones	Confidential Informants Policy/Procedures	Police Attorney is preparing final items for release.
3/26/2013	Bill Knight	Project Homestead Emails Email Search - 5,323	Legal has begun reviewing emails. Requestor has received two batches of emails as of 5/24/13.
4/24/2013 (re-opened on 5/13/13)	Roch Smith	PIRT File	Closed on 5/10/13. Re-opened on 5/13/13 per requestor's notice that request not fulfilled. Staff currently reviewing requested information.
4/29/2013	Roch Smith	Surveillance Camera Info	Staff is working on collecting the requested footage.
4/30/2013	George Hartzman	Budget/Ethic Code/East GBO Summit/GPAC Email search: 1,442	Requestor has received part of this request. Staff is currently reviewing emails and should be ready for release next week.
5/1/2013	Ben Holder	NC A&T/Bennett College Students Email search: 484	911 audio and documents have been released to the requestor. Emails are currently being reviewed.
5/16/2013	Billy Jones	Correspondence between Council & DGI & AG	Email search was completed by IT this week and Legal has begun reviewing emails.
5/16/2013	Lee Polowczuk	Vehicle Accidents	Staff is collecting the requested information.
5/16/2013	A. Stevens	Copier and Postage Machine Vendor Agreements	Staff is collecting the requested information and contacted the requestor for clarification.
5/20/2013	Billy Jones	Communication for last 90 days (follow up to 2472)	Email search was completed by IT this week and Legal will begin reviewing emails.
5/20/2013	George Hartzman	Len Lucas Emails to Audit Committee for last 12 months	Email search was completed by IT this week and staff has begun reviewing emails.
5/20/2013	Roch Smith	Database Indexes	Staff has asked requestor for clarification.
5/20/2013	George Hartzman	Email between Mary Vigue & Len Lucas	Email search was completed by IT this week and Legal will begin reviewing emails.

5/21/2013	John Godwin	DGI Committee Appointed by Mayor & Copies of Emails	List was provided to requestor. Email search was completed by IT this week and Legal will begin reviewing emails.
5/21/2013	Eric Robert	Greenway Accounting	Requestor has received part of this request. Staff has requested clarification on the email search.
5/22/2013	Billy Jones	All Records of RUCO & Other Rental Complaints involving Phillips Mgmt Grp	Staff is collecting the requested information.
5/23/2013	Jose Figueroa	Contracts with Thomas-West (Westlaw)	Staff is collecting the requested information.
5/24/2013	Roch Smith	PIRT 2455/2351	Staff received the request.

Weekly Totals (5/20/13-5/24/13):	
Number of PIRTS Opened	21
Number of PIRTS Closed	19
Average Completion Time	9.26 days
Totals Since January 1, 2013:	
Number of PIRTS Opened	296
Number of PIRTS Closed	276
Average Completion Time	8.75 days

**Public Affairs
Contact Center Weekly Report
Week of 5/13/13 – 5/19/13**

Contact Center

5012 calls answered this week

Top 5 calls by area

Water Resources

Balance Inquiry – 972
IVR/Pay by Phone – 295
General Info – 162
New Sign up – 145
Cutoff Requests – 102

Field Operations

Bulk Guidelines – 113
Mattress Go Round – 80
HHW/Landfill/Transfer – 78
Repair Can/Garbage – 62
E-Waste Collection – 53

All others

Police/Watch Operations – 390
Overgrown Lots – 126
Better Buildings Program – 93
Courts/Sheriff – 60
Privilege License – 52

Comments

We received a total of **5** comments this week:

Engineering and Inspections - 1 comment:

- Caller states building inspections should continue. Rental inspections are needed.

Field Operations – 1 comment:

- Thank you to yard waste collections for their efforts and thoughtfulness. They helped the customer by stacking empty cans neatly and offering to help her get them back into her yard.

Parks and Recreation – 2 comments:

- There needs to be an easy way to see what parks have bathrooms. I should be able to click on a park and see that, not have to guess.
- Caller was at Spencer-Love yesterday using a facility, came out to a flat tire on her SUV. The crew offered to help fix the flat. They were polite and courteous. This was above and beyond what she ever expected, allowed her to get to her son's recital on time. She wanted to send a big thank you to these men. They were wonderful and she would like their good service to be recognized.

Water Resources – 1 comment:

- After new water account set up and trash collection information, commenting on our fast, easy process: "I've been on the phone for 45 minutes with AT&T and they still do not have my account set up. I cannot tell you what a pleasure this has been. You have made my day."

Overall

Calls about the Better Buildings program increased last week. Calls about overgrown lots also continued to increase. Call volume was busy through the end of the week.



SMALL GROUP MEETINGS

Small Group Meeting Dates & Times	Councilmember Attending	Person Contacted / Department	Subject	Council Notification Date
May 20, 2013	Councilmember Nancy Vaughan, Councilmember Zack Matheny	City Manager Roth	Greensboro Performing Arts Center	May 24, 2013
May 23, 2013	Councilmember Nancy Vaughan, Councilmember Zack Matheny	City Manager Roth	Greensboro Performing Arts Center	May 24, 2013