

Household Sewage Treatment Systems and the Local Health Department's Role in Illicit Discharges

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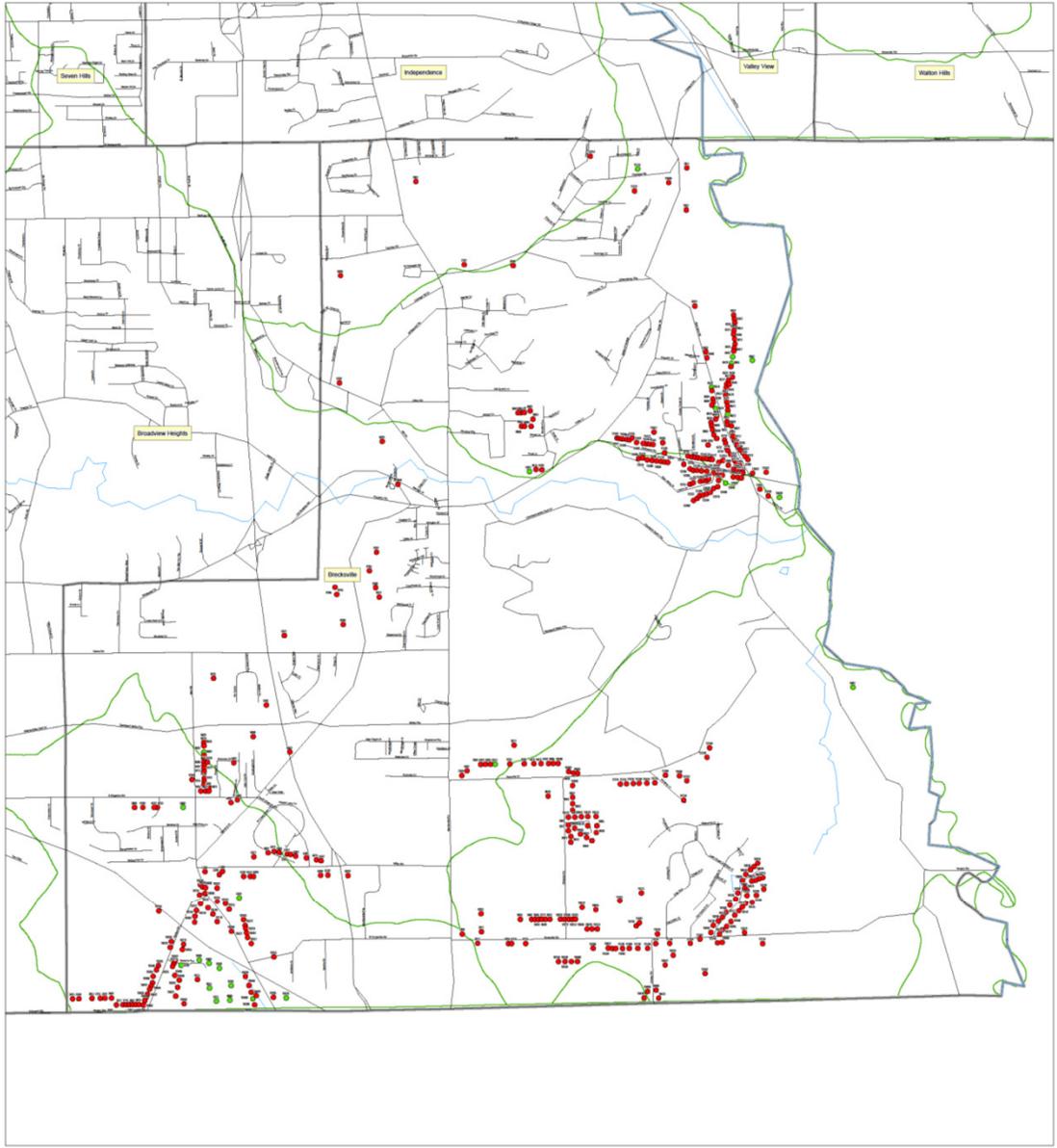


Discussion Topics

- NPDES Permit Requirements
- HSTS in Cuyahoga County
- NPDES HSTS Approval Requirements

NPDES IDDE Permit Requirements

- Develop a list of all discharging sewage systems (HSTS) connected to your MS4s including addresses.
- Storm sewer map showing location of HSTS.
 - Map should include type and size of conduits/ditches in your MS4 that receives discharges from HSTSs.



- Legend**
- Discharge Location
 - On lot
 - Discharge
 - Stream
 - Streets
 - ▭ Municipalities
 - ▭ Watersheds

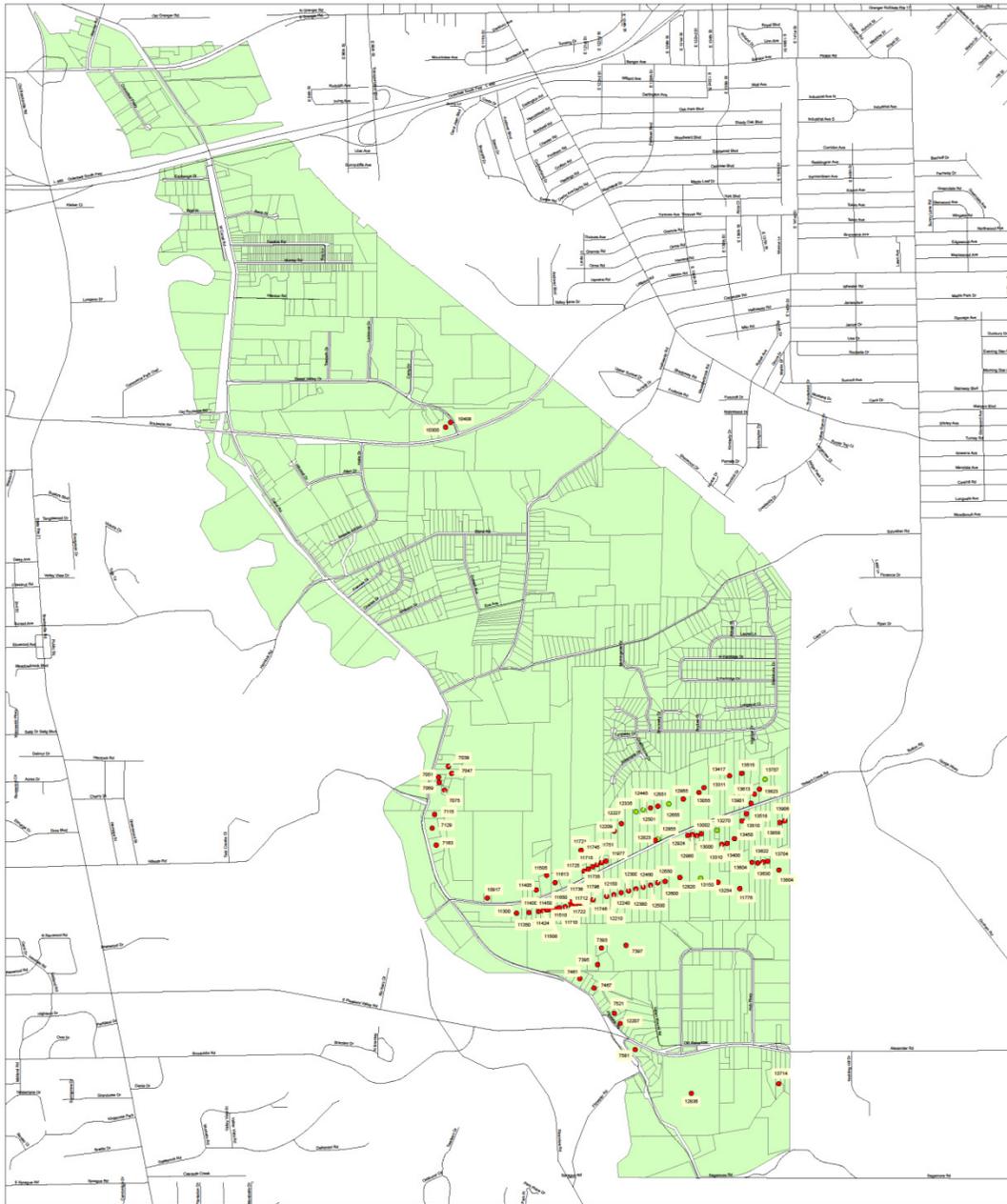


Household Sewage Treatment System Locations



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Legend
 Household Sewage Systems
 ● On-Lot
 ● Discharge
 — Streets
 ■ Parcels



Household Sewage Treatment System Locations

0 0.5 1 Miles

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Public Health
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Permit Requirements

- Communities shall develop and implement a plan to detect and eliminate non-storm water discharges.
- Should address or include provisions for HSTSs.
 - This includes:
 - Working with local board(s) of health to identify existing discharging HSTSs that can be connected to sanitary sewer.
 - Working with local board(s) of health to develop a proactive O & M program. Focus on existing discharging HSTSs and verify that HSTSs are operating as designed and intended.
 - Work with local board(s) of health when contamination sources have been identified in the local MS4 and determine proper course of action in resolving non-functioning HTSTs.

Permit Requirements

- Course of Action for non-functioning HSTSs:
 - Connection to central sewers
 - Replacement with a soil absorption system (that does not discharge)
 - NPDES discharging HSTS

Local Health Department's Role

- Manage of HSTS in county through Operation & Maintenance Permit Program
- Replacements through OEPA NPDES Permitting Program
- Work with communities on their course of action to meet IDDE Permit requirements

SYSTEM DESIGN

Installed: 1950's and 1960's

- **500 or 1000 gallon septic tank**
- **180 sq. ft. gravel filter bed or an overflowing leachfield**
- **Aeration system with no filter or fail safe**

SYSTEM DESIGN

Installed: 70's, 80's, 90's & Now

- 500 gallons of septic tank per bedroom
- **240 sq. ft. subsurface sand filter bed per bedroom**
- Approved aeration system of fail safe design or telemetry
- Evapo-Transpiration Fields
- Mounds
- Drip Distribution Systems

Soil Conditions



- **Sandy soils**
- **Only in isolated areas**
- **Allow for the use of leaching systems**



- **Heavy clay soils**
- **Widespread**
- **Not suitable for traditional leaching systems**

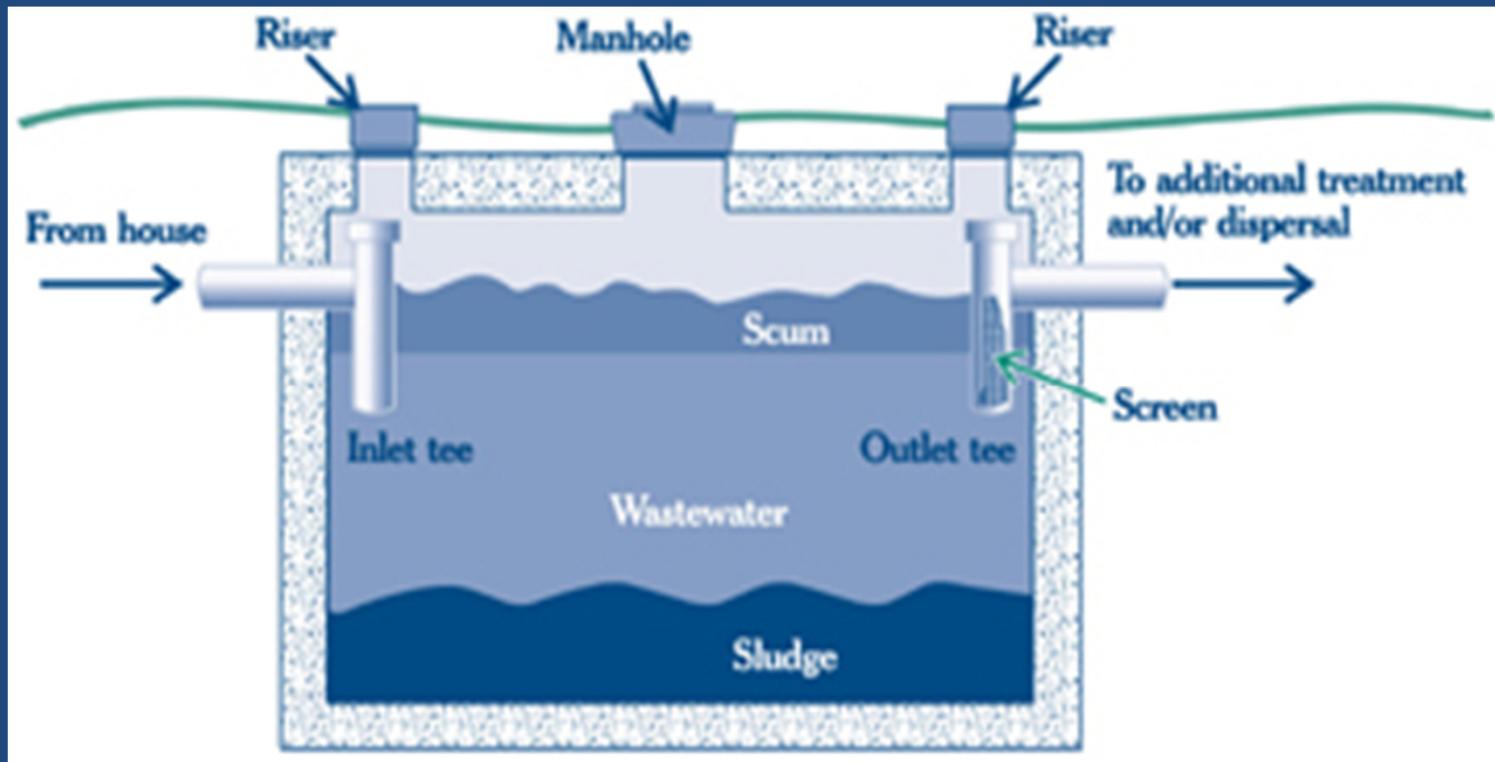
Septic Systems in Use

- **Total Active** **10,317**
- **Discharging** **9,724**
 - **Discharging with NPDES Coverage** **267**
- **Soil Absorption** **326**

Discharging Sewage Systems

- Pre 1977 or unknown date 4,883
- 1977-2007 4,841
- 2007 – Present (NPDES Coverage) 267
- **Total Number of Failures 1,828**

Septic Tank



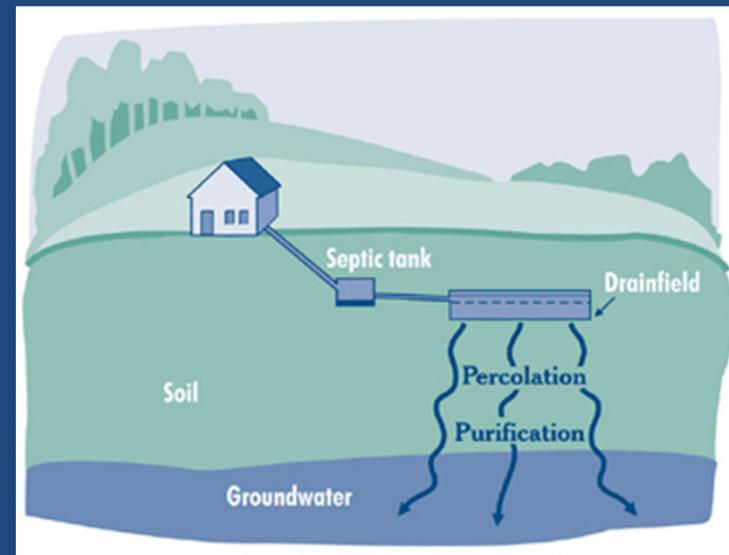
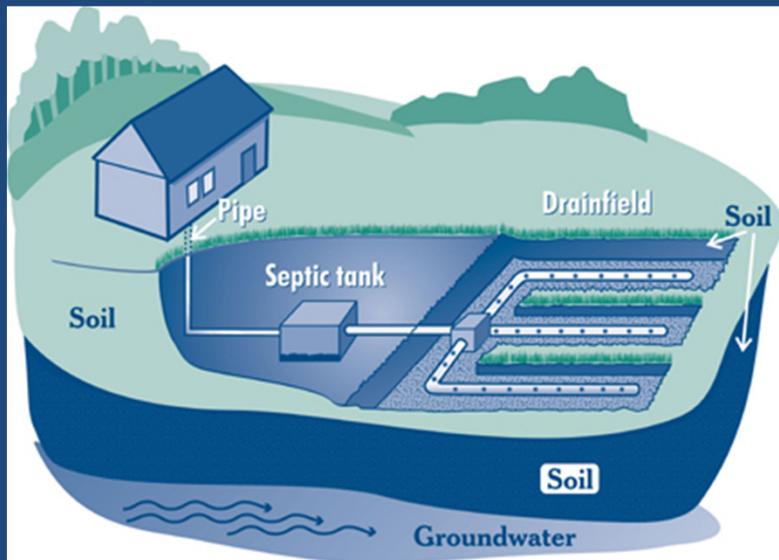
Filter Bed Systems



Aeration Systems



Leaching Systems



Mound Systems



Drip Distribution Systems



Existing Sewage Systems



- Many older discharging systems still in use throughout the county
- Poorly functioning systems can impact ditches, streams and rivers throughout a watershed

Storm Sewer Outfalls



Start-up of Household Sewage Management Program

- Ohio EPA studies
- Cuyahoga River Remedial Action Plan (RAP)
- Sewage system evaluation results
- Water quality sampling data

Septic Management Program 1993

- Allows for an increased number of sewage system evaluations
- Help identify and prioritize water quality issues throughout our watersheds
- Expand existing relationships with community officials and regional planning authorities
- Improved CCBH visibility to homeowners
- Better educate the public on sewage system design and maintenance

Household Sewage Program Database

Microsoft Access - [frmMaster : Form]

File Edit View Insert Format Records Tools Window Help

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Type a question for help

Household Sewage Program

Find System HSTS

System Information Service Recent Permits Inspections PermitArchives Mailing Address System Sampling Correspondence

3173

ST_Owner: Parcel: SepticID: **KLEINHAUT/ABERG** **91207009** **HSTS03175**

System Location System Location Comments Add New System

House Number Street Prefix (E,W Street Name Street Suffix (Rd, Ave City
60 **FIRCREST** **LN** **Moreland Hills**

Additional Address Info State Location Phone 440-463-8322
 OH Location E-Mail

ZIP (5) ZIP (4) Current Status **A**
 44022

Verify Auditor Drawing File Type: .pdf View Drawing

Primary Treatment

Number of Tanks: 1
 Size (Gal): 500
 Type: Trash Trap
 Model: UNIONTOWN

Secondary Treatment

Size: 600
 Unit of Measure: GPD
 Type: AERATION
 Model: Enviroguard - M

Tertiary Treatment

Size:
 Unit of Measure:
 Type: ULTRA VIOLET DISINFEC
 Model: Salcor

Discharge / Soil Absorption

Discharging System Soil Absorption System
 Discharge Location: RAVINE/HILLSIDE
 Size:
 Unit Size:
 Type:
 Model:

Current Permits and System Class

NPDESAUTH: 3GK00268*AG
 NPDESCoverDate: 10/24/2007
 EpaCover: 8/21/2007
 Permit Class: PTO
 Current Permit Exp Date: 1/11/2010
 Year Installed: 2008
 Install Contractor: SHILOH TOOL CO

Comments

System Type: HSTS

Variance

Dosing Tank

Dose Tank: BEFORE TREATMEN
 Dose Size (Gal): 750

Additional Information

Service Contract Required
 Water Supply: City

Record: 1 of 1 (Filtered)

Form View FLTR

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Information Available In Household Sewage Database

- Property owner, address, permanent parcel #
- System design and size of components
- Installation date, permit #, name of installer
- System inspection dates
- Tank pumping and service dates
- Permit and sampling information
- Schematics (drawings) of most systems

Existing Sewage Systems



- CCBH estimated that approx. 75 % of these existing systems were malfunctioning back in 1993
- Figure based on knowledge of system age, antiquated design, and evaluation results

Water Quality Sampling



Work With Communities

- Help Determine Solutions for Failing Systems
 - Can include mandatory replacement for failing septic systems.
 - Feasibility of sanitary sewers.
- Provide Reports for Issue 1 Funding
- Play an active role in the legislative process
- Funding for Replacement and Abandonment
 - Grants
 - Linked Deposit Loan Program

Soil Absorption System Failures



Evolution of the Sewage Program

- 1977 - Revision of Ohio Sewage Rules
- 1993 - Household Sewage Operation and Maintenance Program was initiated
- 2006 – Passage of House Bill 231 – **New Rules**
- January 1, 2007 – New ODH rules went into effect.
- January 1, 2007 – OEPA General NPDES Permit

Evolution of the Sewage Program

- July 1, 2007 – **House Bill 119** - Much of HB 231 Law was rescinded – **Including the 2007 rules.**
- July 25, 2007 – CCBH adopted current rules
 - Very Similar to 2007 ODH rules
- September 17, 2010 – ORC 3718 (Sub. SB 110)
 - Some portions became effective
 - New Rules after 1/1/2012

Where We Are Now

- State wide 2007 sewage rules are gone
- Health departments can operate under their own rules
 - Must comply with 1977 state rules and Senate Bill 110 language (ORC 3718)
- NPDES permit is still in effect

What This Means to Homeowners

- Existing systems are currently and should be exempt if there is no public health nuisance.
- If system needs replaced
 - Must not discharge if there is room on the property for an on-lot
 - Must connect to sanitary sewer if it is accessible (400 feet from property line)
 - Last resort is a discharging system with NPDES Coverage.

National Pollutant Discharge Elimination System Permit (NPDES)

- Went into effect on January 1, 2007 – five year permit
- Any **new** discharging system must now get coverage
- CCBH signed a MOU with Ohio EPA to conduct site reviews for systems seeking coverage under this permit
- \$200.00 to get coverage from OEPA
- Service contract and annual sampling is required under the homeowners NPDES Permit

What Does This Mean?

- Developed for replacement systems and very few new system installations on previously recorded lots
- Developing smaller lots with a HSTS will be a challenge
- Nearly all new construction required to use a non-discharging sewage system

NPDES HSTS Design

- Systems Designed to meet NPDES requirements must be approved by ODH and the Sewage Technical Advisory Committee

HSTS Replacement

On-Lot HSTS (non-discharging)

- Overall, more expensive to install but cheaper to maintain
- Utilizes soil absorption for treatment
- Used for larger lots, good soil
- Includes Evapo-transpiration, Leaching trenches, mounds and drip distribution (need to have primary and replacement area mapped)
- Does not need an NPDES permit

HSTS Replacement

Off-Lot HSTS (new-discharging)

- Overall, cheaper to install but more expensive to maintain
- Utilizes aeration for treatment
- Used for small lots, steep lots, poor soil
- Includes many types of aeration units, many approved designs (can go almost anywhere, regardless of condition of lot)
- Requires NPDES permit, \$200 every 5 years

Questions?

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