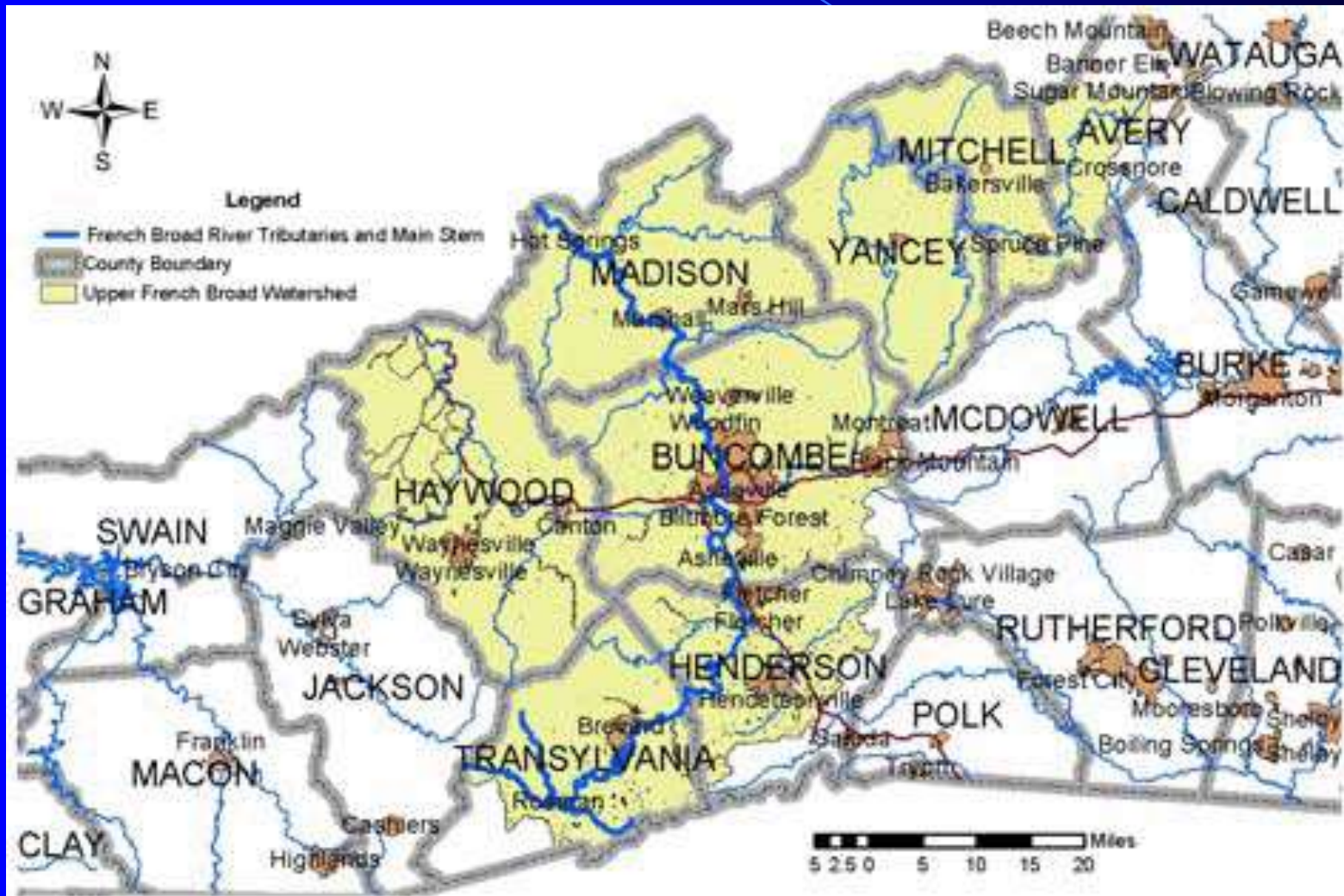


Illicit Discharges Education - Spotting ID's in the Field

Mitch Woodward
Area Spec. Agent –
Watersheds and Water
Quality
NC Cooperative Extension



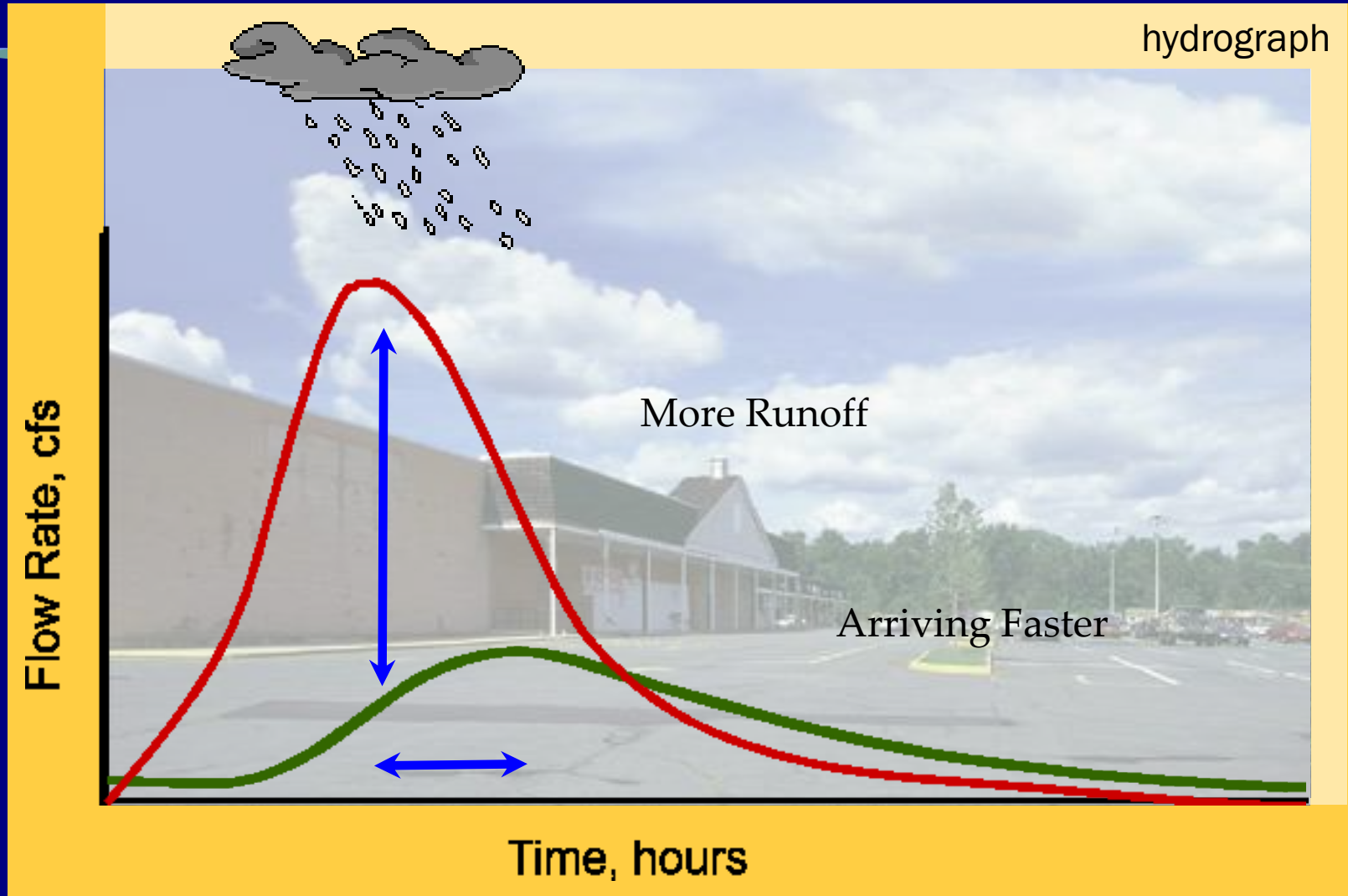
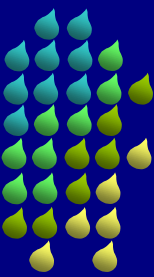
French Broad River Basin - Urbanization Increases Stormwater Flows



Stormwater: Runoff from roads, parking lots, yards and roof-tops. . . .



The Science of Stormwater...





Spotting ID's in the Field:

- Overview & Importance
- Engaging Staff & Citizens
- Goal - Increased awareness of ID's
- What is an ID?
- Case studies
- What to look for.
- When to look.
- Information to note.
- Who to contact.



ILLCIT DISCHARGE FIELD SCREENING PROGRAM
Data Collection Form

OUTFALL #: _____ **Date:** _____ **Time:** _____

TIME SINCE LAST RAIN: ≥ 72 hours < 72 hours
QUANTITY OF LAST RAIN: ≥ 0.1 inches < 0.1 inches
INSPECTION TEAM: _____

SITE DESCRIPTION:

LOCATION (Narrative Description): _____

STRUCTURE TYPE: OPEN CHANNEL MANHOLE OUTFALL OTHER: _____

DOMINANT WATERSHED LAND USES: INDUSTRIAL COMMERCIAL RESIDENTIAL UNKNOWN
OTHER: _____

FLOW ESTIMATION:

WAS FLOW OBSERVED? NO YES IF YES, PLEASE ANSWER a. - d. BELOW.

a. _____ WIDTH OF WATER SURFACE (feet):
b. _____ APPROXIMATE DEPTH OF WATER (feet):
c. _____ APPROXIMATE FLOW VELOCITY (feet per second):
d. _____ FLOW RATE (cubic feet per second) = $a \times b \times c$ = _____

VISUAL OBSERVATIONS:

WAS A PHOTO TAKEN? NO YES (Roll and Photo Number: _____)

ODOR: NONE MUSTY SEWAGE ROTTEN EGGS SOUR MILK OTHER: _____

COLOR: CLEAR RED YELLOW BROWN GREEN GREY OTHER: _____

CLARITY: CLEAR CLOUDY OPAQUE

FLOATABLES: NONE OILY SHEEN GARBAGE/SEWAGE OTHER: _____

DEPOSITS/STAINS: NONE SEDIMENTS OILY OTHER: _____

VEGETATION CONDITION: NONE NORMAL EXCESSIVE GROWTH INHIBITED GROWTH

STRUCTURAL CONDITION: NORMAL CONCRETE CRACKING METAL CORROSION OTHER: _____

BIOLOGICAL: MOSQUITO LARVAE BACTERIA/ALGAE OTHER: _____

1) Illicit Discharges Are:

Discharges into storm drainage systems (pipes, streams, ditches, water bodies) which are not composed entirely of stormwater and have not been permitted.

***Can include land close to water.



2) Illicit Connections Are:

- Pipes discharging anything other than stormwater into the stormwater drainage system or directly into water bodies
- Examples:
 - PVC pipe draining from a washing machine
 - Wastewater pipe connected into a catch basin



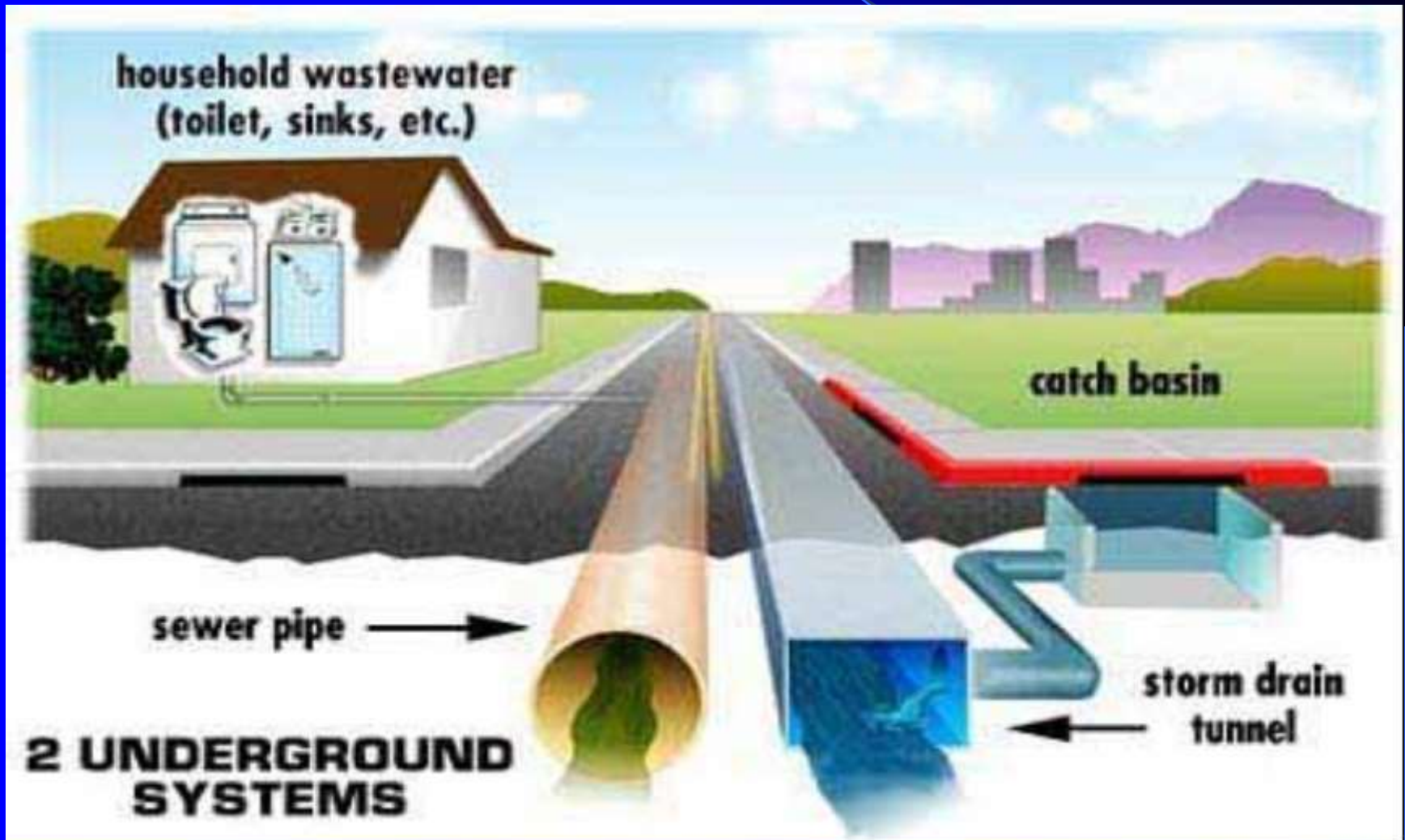
Where does all that water go?



Stormwater Impacts Our Streams / Water Quality



Stormwater System is Separate System!



Survey Says:

Only 38% of North Carolinians
Know the Difference!!!

ID's Can Contain Pollutants:

- Heavy Metals
- Toxics
- Oil and Grease
- Solvents
- Nutrients
- Viruses and
Bacteria



Most common types of discharges into storm sewer system include:

- Sediment
- Car wash runoff (commercial)
- Lawn debris
- Lawn fertilizers and pesticides
- Washdown from restaurants & construction debris
- Grease traps
- Automotive fluids

Look for:

- Any disposal, dumping, spill, leak, or other discharge of anything other than stormwater into or onto:
 - Stormwater catch basin
 - Stormwater drainage system
 - Any water body
 - Land in close proximity to any of the above so that the substance may reach the stormwater drainage system or any water body

Best Conditions for Finding ID's:

- Prolonged dry periods
- Non-growing season: fall – winter – early spring
- Low ground water levels
- Stop during rainfall



Key: No runoff event for the last 48 - 72 hours



Eyes / Nose / Ears:

- Use your eyes

- Materials dumped illegally into storm drains?
- Small pipes draining and it hasn't rained?
- Spilled oil or paint, colored water, foam, floatables?

- Use your nose

- Unusual odors
- Sewer smell
- Detergent 'clean' smell
- Fuel / oil

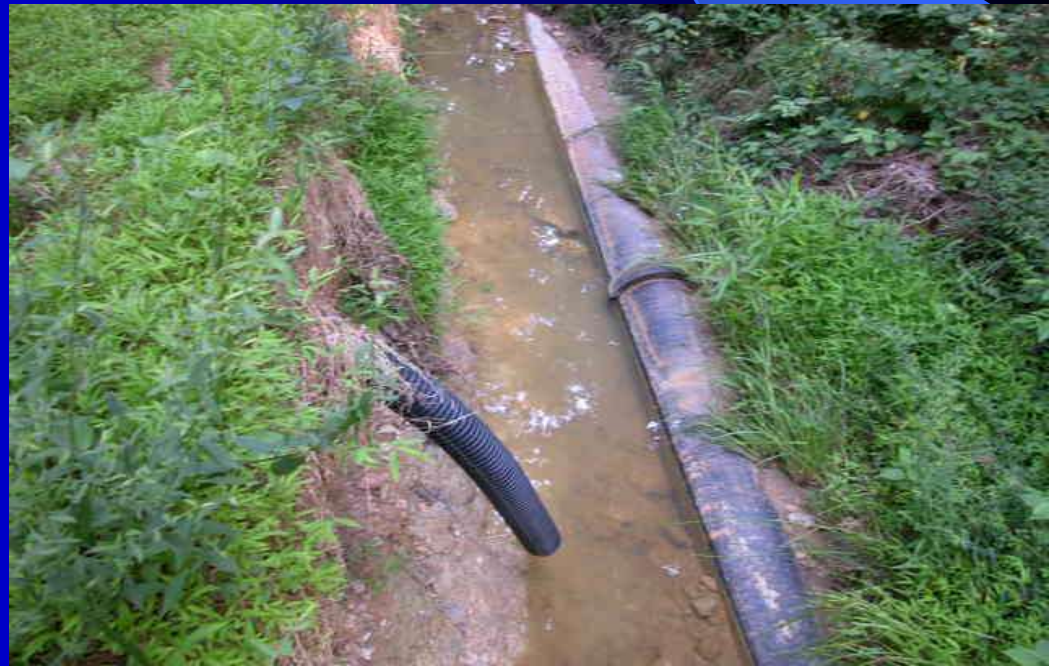
- Use your ears

- Small pipes draining and it hasn't rained?



Note 'Stream-side' Activities -

- Construction Activity?
- Wastewater from sewers and septic systems?
- Vehicle maintenance activities?
- Industrial areas – commercial sites?
- Direct dumping into storm drains or streams?



So - - How do You Tell Illicit Discharges from Non- Illicit Discharges ???

- Can be Difficult to Know
for Sure
- Use Sight and Smell
- Key - Dry Weather
flows
- Follow-Up with
Town Stormwater
Staff



Not Illicit Discharges:

SURFACE WATER

- Residential, Charity Car Washing
- Springs
- Flows from riparian habitats and wetlands
- Landscape Irrigation
- Diverted Stream Flows
- Roof runoff piped to streams

'Clean' Water Sources

- Waterline flushing
- Air Conditioner Condensate
- Dechlorinated backwash and draining swimming pools
- Street wash water
- Fire fighting runoff
- NPDES permitted discharges

GROUND WATER

- Uncontaminated, rising ground water
- Uncontaminated pumped ground water
- Foundation and footing drains
- Water from sump pumps (crawl space, basement pumps)



What if you find something?

- Inform your Stormwater Contact Person



Raleigh's Good Housekeeping – Illicit Discharge Program

Most problems caused by:

- Homeowner's side of municipal sewer system
- Mobile car washers
- Homeowners / landscapers
- Shade tree mechanics
- Restaurants

Raleigh's Good Housekeeping – Illicit Discharge Program

- Complaint driven w/ education – or – fines as needed
- Annual inspections of facilities + additional inspections in problem areas
- 2016 – 200 complaints / 90 IDDE's
- Fines Increasing: 5 gal or less - \$100
Larger spills \$1000 + / day
- Education focused on: restaurants, homeowners, and auto service shops

"Quiz Time"



Spills, Chills, and Dollar \$ Bills \$



Violation? **Yes**, this is an illicit discharge
What is it? **Paint Spill**
Charge? **Company owner was notified**
Action taken? **Paint was cleaned that day!**

1.14.2005







STORMWATER

5/7/1999

The background is a solid blue color. A thin, light blue curved line starts from the top left and arcs towards the right. A larger, darker blue triangular shape is positioned on the right side, pointing towards the center.

**Trains, Planes,
and**



Violation? **Yes**, this is an illicit discharge

What is it? **Antifreeze** dripping and flowing across the parking lot

Charge? **Multiple offences**, met with district managers

Action taken? **Managers will send letter biannually to all shops about Illicit Discharge Ordinance.**



2/1/2001 14:33







2007.10.04 08:54





Violation? **Yes**, this is an illicit discharge

What is it? **Wash runoff** from a professional car wash/detail business

Charge? **Multiple Offender**, Letter of violation requiring cease discharge

Action taken? **Warning** was issued



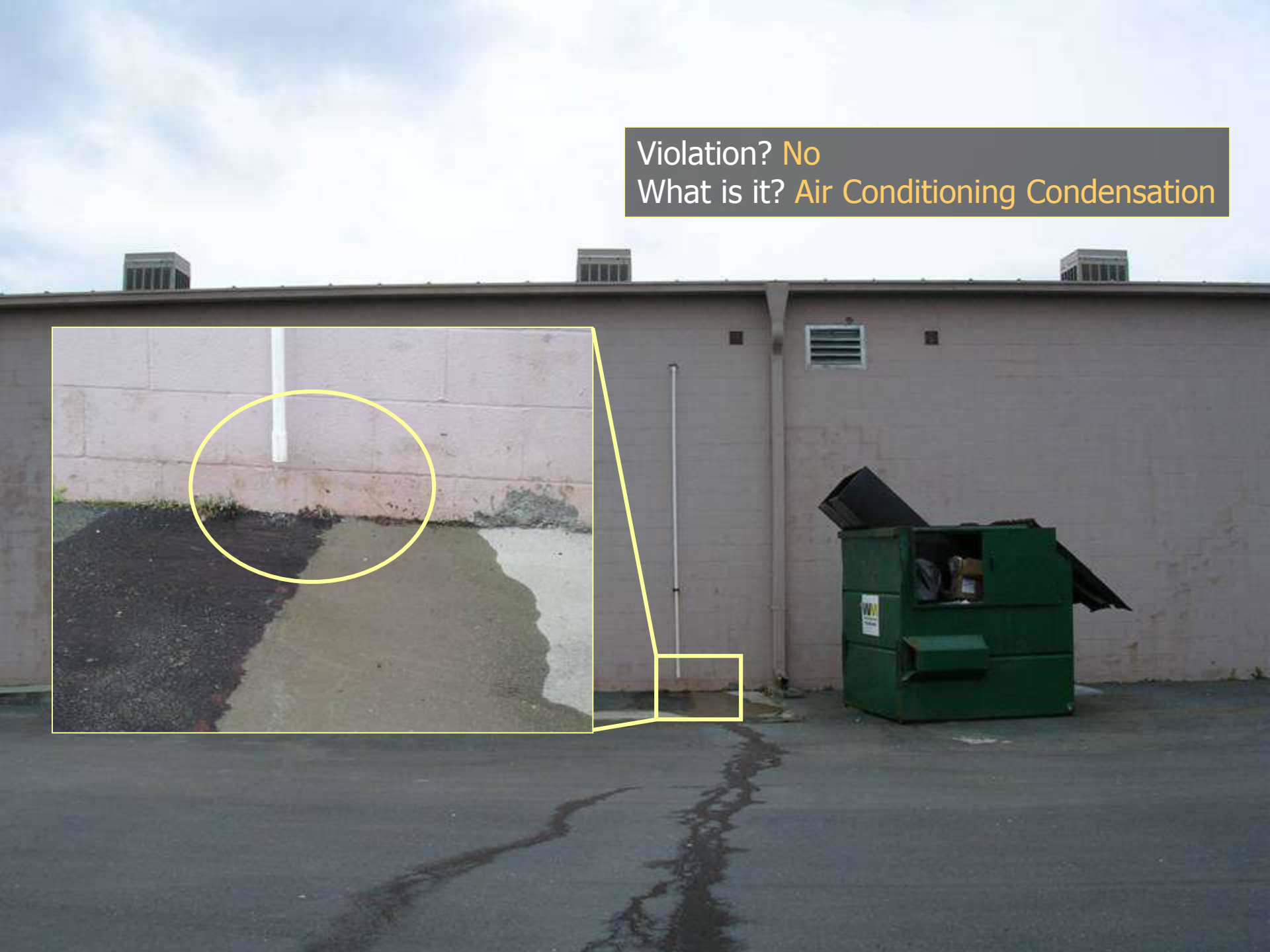




Federal CDC Mosquito Concerns

Dumpster Mania....

Violation? **No**
What is it? **Air Conditioning Condensation**









195800

195800

NOTICE
NO PARKING
DO NOT BLOCK
CONTAINER



53019



53019

2010.02.15 15:03





**Polluting on a
Fake ID ???**



Violation? No

What is it? Bacterial Growth in almost Stagnant Water

11/16/2004 11:06



Violation? No

What is it? Algae growth in stagnant water







**Pipes, Pipes, &
More Pipes.....**



Violation Yes, this is an illicit connection
What is it? Disconnection of sewer service
Charge? First Offense, Letter of violation requiring
property owner to fix the connection
Action taken? Public Utilities worked with property owner
to repair the connection







Violation? Yes, this is an illicit connection
What is it? Discharge from residential washing machine
Charge? First Offense, Letter of violation requiring
cease discharge
Action taken? Property owner capped the pipes and
discontinued use of washing machine





10.18.2004 09:35







Violation? Yes, this is an illicit discharge
What is it? Large amounts of detergent
Charge? First violation, Fined \$500 due to severity of offense and
refusal of immediate discharge cleanup
Action taken? Fine paid in full





Landscaper & Homeowner Hijinks

Violations? Yes, this is an illicit discharge

What is it? Fertilizer and Lawn waste





2008-01-07 11:45



2008-01-07 11:45



**Manhole
Mischief.....**





2007 03 14 14



2007 03 14 14 49

Contractor Conundrums....













Educating Citizens - Businesses

- Town Websites
- Social media / email
- Town Hotline
- Site Visits
- Brochures - landscapers, carcare co's, pet owners, restaurants, homeowners, shade tree mechanics
- Community Survey

OVERVIEW

• What is an illicit discharge?

An illicit discharge is the release of pollutants or non-stormwater materials to the stormwater system. The result is untreated discharges that contribute high levels of pollutants including heavy metals, acids, oil and grease, solvents, nutrients, sewage, and bacteria to receiving waters.



• What is Apex doing about illicit discharges?

In 2004, Apex adopted an ordinance to establish an Illicit Discharge Detection and Elimination (IDDE) program including a procedure for assessing civil penalties on violators. Town staff investigate reported illicit discharges and improper discharges to the Town's stormwater system. Examples of such investigations include someone dumping paint or yard debris into a storm drain or creek.

• What can I do?

You can do your part by keeping all non-stormwater materials away from and out of all curbs, inlets, grates, and water bodies in Town. You can also contact Public Works at 249-3427 to report illicit discharges.

249-3427

CALL TO REPORT AN ILICIT DISCHARGE!

CONTACT INFORMATION

Mike Denton, PE
Environmental Programs Manager
mike.denton@apexnc.org

Jessica Bolin, PE
Stormwater/Utility Engineer
jessica.bolin@apexnc.org

Steve Miller
Public Works Engineering Projects
Coordinator
steve.miller@apexnc.org



249-3427

WWW.APEXNC.ORG

Town of Apex



Illicit Discharge

Public Works & Utilities Department
Environmental Programs Division
105 Upchurch Street
Apex, NC 27502
(919) 249-3427

TWO SYSTEMS

The stormwater system is often confused with the sanitary sewer system. In Apex, there are two distinctly separate systems. In fact, the stormwater system is known as the Municipally Separate Storm Sewer System (MS4).



Flows to the sanitary sewer system (e.g., flushing toilets, shower drains, kitchen sink drains, etc.) are treated at the Apex Water Reclamation Facility on Highway 55.

Flows to the stormwater system (through curb drains on the edge of the street, stormwater catch basins, etc.) usually go to the nearest creek, stream, or lake and do not require treatment at a plant.



REPORTING

• How do I report an illicit discharge?

To report an illicit discharge in Town, please call Public Works at 249-3427. Many environmental problems can be prevented and resolved as a result of these investigations. You can make a difference by calling!

• What do I say when I call?

Please have the following information ready when you make the call:

1. Your name and contact information (if you would like staff to follow up with you).
2. Location of the incident.
3. Date and time you witnessed the incident.
4. General description of activity and materials involved.

• What happens after I call?

Once an illicit discharge is reported, the information is logged into our database. An Environmental Programs staff member will investigate and follow standard operating procedures. Per the IDDE ordinance, a civil penalty may be issued to the violator based on the severity of the incident.



249-3427

STORM DRAIN MARKING PROGRAM

The Town of Apex Storm Drain Marking Program is a great volunteer opportunity for residents to help educate their community about the importance of stormwater pollution prevention.



The program allows volunteers to address unattended specific markers on storm drains to remind citizens that stormwater runoff can wash pesticides, fertilizers, pet waste, oil, and other automotive fluids, sediment, and household chemicals to our valuable creeks, rivers, and lakes.



The Town will provide you and/or your group with all storm drain marking supplies, safety equipment, and instructions. Call Public Works to schedule a storm drain marking event!

Training Suggestions

- Include 'Field' Employees and Contractors
 - City / Town Public Utilities Department / Field Staff.
 - Environmental Groups / Adopt a Stream / Clean Sweep Volunteers.
 - Police / Fire / Meter Readers / Sanitation Dept.
 - Landscapers / Maintenance Staff
- Scout Good Areas for a ID Tour
 - Easy Access
 - Publicly Owned

Questions?

