

# Inflow and Infiltration

Monday, December 12, 2005  
Ohio EPA Northwest District Office

## What is I/I?

- Infiltration - water entering a sewer system and service connections from the ground through such means as, but not limited to, pipes, pipe joints, connections, manhole walls or manhole joints
- Inflow - The water discharged into a sewer system, including service connections, from such sources as, but not limited to; roof leaders; yard and area drains; foundation drains; cooling water discharges; drains from springs and swampy areas; manhole covers; cross connections from storm sewers; surface runoff; or drainage

## What is I/I?

I/I = The total quantity of water from both infiltration and inflow without distinguishing the source.

## Who Needs I/I Credits?

- Every Combined Sewer Overflow (CSO) and Sanitary Sewer Overflow (SSO) community that does not have a Long Term Control Plan approved by Ohio EPA or US EPA
- Each WWTP that has reached its design hydraulic average daily flow or its biological treatment capacity

## I/I Removal Credits

- Brief History
  - Antidegradation Rule (Ohio Administrative Code 3745-1-05) went into effect in 1998 which required any PTI projects that resulted in additional pollutants being discharged to waters of the state to go through the Antidegradation review.
  - NWDO developed the I/I removal credit program to help CSO communities avoid going through the antidegradation review for each sanitary sewer extension.

## How I/I Removal Credit Works

For every 1 gallon of sewage flow added to the sewer system, 3.33 gallons (peak flow) of inflow and infiltration need to be removed through repairs and maintenance to the sewer system

## How I/I Removal Credit Works

- To obtain credits with NWDO CSO communities could do the following projects
  - Manhole Rehabilitation
  - Install Chimney Seals
  - Abandon and Remove Sewers with high I/I
  - Replace Damaged Sewer Mains
  - Sump pump removal

## What needs to be submitted with a PTI Application?

- Consulting engineers will need to obtain a letter from the CSO community indicating that the community will allocate I/I credits for the proposed sewer extension and submit it to NWDO as part of the PTI submittal package.
- NWDO-DSW tracks the I/I credits on a spreadsheet for each community and includes a special condition in the PTI related to I/I removal and flow credits

## Common Questions?

- Are I/I removal credits needed for a sewer extension that goes to the WWTP directly and is not upstream or downstream of a CSO?
  - Yes, because the flow from the new sewer is taking up treatment capacity at the WWTP, however if WWTP has a Long Term Control Plan approved by Ohio EPA or US EPA then I/I removal credits are not needed

Questions???