



# INFLOW AND INFILTRATION STRATEGIES

## IN SUPPORT OF DEPARTMENT OF DEFENSE

### ENVIRONMENTAL SCIENCES DIVISION "SCIENCE TO SUSTAIN OUR ENVIRONMENT"

#### TECHNOLOGY

- Short-Duration Flow Studies
- Flow Isolation
- Flow Monitoring
- Manhole Inventory and Inspection
- Manhole Inventory
- Mapping
- Smoke Testing
- Video Inspection
- Dye Water Flooding
- Leachate Collection System Cleaning
- Chemical Grouting
- HDPE Slip Lining
- Air Scouring
- Manhole Rehabilitation
- Cured in Place Pipe Lining
- Line Tapping
- Flow Monitoring
- Hydraulic Modeling
- Audit and Assessment
- Project/program Management

#### ESD's Role for Inflow and Infiltration Strategies to the DoD

To provide responsible management of environmental resources, ESD developed and implemented a **Water Sustainability/Security Model** that can be used at DoD facilities. The aim of this program is to maintain and improve the capacity and performance of the base's wastewater collection system. Improved system capacity and performance should reduce the volume of water requiring treatment, prevent sanitary sewer overflows, and prevent contaminants from shallow groundwater plumes underlying the base from entering sanitary water treatment systems. ORNL developed and has successfully demonstrated a highly effective integrated and phased approach for analyzing, assessing, and remediating wastewater collection systems. The approach addresses I&I issues as well as other factors that can adversely affect system capacity and performance.

The ORNL approach for wastewater collection system sustainability focuses on the systematic collection and analysis of real-time data, and emphasizes the incorporation of appropriate rehabilitation technologies and technologies for monitoring and assessing operational status. By beginning with investigation and analysis of system performance as a way to pinpoint problems, ORNL has been able to select and deploy maintenance and rehabilitation technologies for each specific type of problem encountered by DoD facilities. The ORNL approach contrasts with the more commonly used strategies, in which a single vendor implements its particular technology in all parts of a collection system, even though the collection system's capacity and security may be compromised by various factors and different conditions. The experience and knowledge of the ORNL team has been essential to the highly successful projects conducted across the DoD. A schematic outlining the core components of ORNL's approach for wastewater collection system sustainability and security is shown below:

