

# OPEN-PATH MONITORING

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# RECENT ACTIONS

- NATIONAL REGULATORY IMPACTS
- NEW PERMIT MONITORING
- SIP STRATEGY CHANGES
- NEW STUDIES ARE MUSHROOMING
- NEW TECHNOLOGIES DEVELOPING

# HISTORY OF OPEN-PATH

- PRIMITIVE PRE-1990'S
- OVERPROMISES OF THE 1990'S
- NEW DETECTORS, LASERS, AND SOFTWARE
- ELIMINATION OF MODELING ERRORS AND NEW ALGORITHMS

# THE HARD WORK

- MILITARY RESEARCH PROGRAMS
- EPA'S SOLID WASTE SUPPORT
- OAQPS WORKSHOPS AND CONFERENCES
- APPROVED PROTOCOLS
- LANDFILLS, GASOLINE STATIONS, AND AGRICULTURE OPERATIONS
- REFINERY STUDIES

# THE NEW STUFF

- FTIR
- DOAS
- DIAL
- DOPPLER
- OPTICAL REMOTE SENSING  
PROTOCOL
- IR CAMERAS

# THE POLLUTANTS

## GASES

ORGANIC AND INORGANIC  
SPECIFIC AND TOTAL  
METHOD 21—FIND IT AND FIX IT

## PARTICULATES

WIND VECTORS FOR MASS FLUX

# PRELIMINARY RESULTS OF OPEN-PATH WORK

- REFINERIES: AT LEAST ONE ORDER OF MAGNITUDE GREATER EMISSIONS THAN PREVIOUSLY REPORTED—MORE THAN 40 TIMES FOR BENZENE
- THE NEW TECHNOLOGIES WORK AND PROVIDE MORE ACCURATE AND CONTINUOUS EMISSION MEASUREMENTS
- MANY UPSTREAM AND DOWNSTREAM PETRO-SOURCES REMAIN TO BE COUNTED (AIRPORTS, WELLHEADS, NETWORKS)

# FUTURE WORK

- WORKSHOPS PLANNED
- NEW IN-DEPTH STUDIES
- MILITARY FOCUS
- EXTENDED APPLICATIONS