



*Protean Instrument Corporation*

# Automating Air Monitoring Workflow

with

## **TRAC**

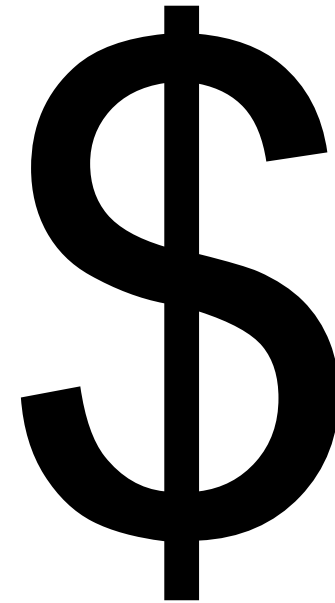
“Totalized Retentive Air Collection”





# Manual Air Sampling

- Programs depend on manual data recording
  - Manual data recording is:
    - *Slow*
    - *Error prone*
    - ...
- Therefore it is **expensive!***





# Manual Air Sampling

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- **Place air filter**
  - **Record:** (1)Location, (2)Filter ID, (3)Start time/date, (4)Beginning air flow
- **Collect air filter**
  - **Record:** (5)Location, (6)Filter ID, (7)Start time/date, (8)Ending air flow
- **Count air filter**
  - **Manually transfer:** (9)Location, (10)ID, (11)Start time/date, (12)Stop time/date, (13)Beginning, and (14)Ending air flow



# Manual Air Sampling

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- *14 points to:*
  - *Introduce data errors*
  - *Uses **lots** of worker time*

Estimated time required is

***10-15 minutes\* per sample for manual  
data processing***

*\*K-25 Project, Bechtel-Jacobs & SEC*



# “TRAC” Air Sampling

- With a TRAC system:
  - Place air filter
  - Collect air filter
  - Count air filter
- *Data is collected and transferred automatically*





# TRAC System

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- **Totalized Retentive Air Collection is:**
  - TRAC equipped air sampling station
    - Fixed or Portable (*Wheeled or Desktop*)
  - TRAC air filter carrier
    - Uses your *existing* 2" sample media
  - TRAC equipped counting system
    - Automatic single detector, Manual multi-detector, Manual single detector



# TRAC Components

- Sampling head
  - Holds TRAC carrier
  - Interfaces with TRAC controller
  - Can mount on flexible extension hose for remote positioning





# TRAC Components

- TRAC Carrier
  - Uses standard media
  - Stores collection parameters
  - Uses non-volatile memory
    - Rugged, environmentally sealed
  - Hard coded serial number







# TRAC Components

- TRAC Controller
  - Updates every few seconds
  - Calibrated mass flow sensor
  - Corrects air flow to STP
  - Can control pump
  - Corrects for filter loading
  - Unique ID per controller
  - Battery backed memory





# TRAC Components

- TRAC Pump (THS)
  - Has flow controller
  - HEPA filter
  - Pump
  - Head extension
  - Remote head





# TRAC Components

- TRAC Controller
  - Programmable for
    - Collected volume (L or CF)
    - Time
  - Resumes collection
  - Writes to TRAC carrier
    - Start/Stop time & date
    - Pump ID
    - Totalized air volume
  - Can retrofit to existing pumps





# TRAC Components

- TRAC Equipped Counting System
  - Automatic or manual sample changer
  - TRAC reader transfers data from button memory
  - Systems have built in reports to use sampling data in reports



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*[www.proteaninstrument.com](http://www.proteaninstrument.com)*



# TRAC Components

- TRAC Calibration
  - Return to Protean  
or...
  - Use TRAC Calibrator
    - Contains high precision mass flow sensor
    - Calibrate systems as needed in-house





# Benefits of TRAC

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- 14 manual data steps are reduced to 0
  - **No** chance for errors
  - **No** time spent manually transferring data
- Data is more accurate
  - Corrected for STP
  - Corrected for filter loading
- Low cost
  - Standard 2 inch filter media
  - Special software **not** required
  - Software license **not** required



# More Benefits of TRAC

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- **Counting system option is rational**
  - Low cost at ~\$600 per system
  - Doesn't interfere with normal system operation
  - Doesn't change counting performance
- **System is Scalable**
  - Can be built from single pump to as many as required
- **Does not require additional hardware**
  - No hand held instruments
  - No expensive options on counting system



# Is TRAC Worth It?

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- Manual system:
  - Use these factors
    - L = Labor cost in \$/hour
    - F = Number of filters/year
    - T = Time for manual data transfer
      - *Estimated 10 minutes/filter*

Cost = (LFT)/60 = Total \$/year for manual system





# Is TRAC Worth It?

- TRAC system:
  - Use these factors
    - Manual cost =  $F \cdot T \cdot L / 60 = \mathbf{M}$
    - Automatic system is cost of pumps + TRAC sample heads + TRAC controllers =  $\mathbf{A}$
    - Payoff is  $\mathbf{A/M}$  in years

NOTE: Cost of filter media, counting system(s) is constant for both methods



# Is TRAC Worth It?

- Somewhat hypothetical example:
  - 10 station system with 5 fixed and 5 mobile sample heads = ~ \$35,000 acquisition cost
  - Labor is \$25/loaded hour
  - Sampling is 2 filters/day/station = 7300 samples/year
  - Cost is:  $7300 * 10 * \$25 / 60 = \$30,417/\text{year}$
  - System is paid for in  $35,000/30,417 = 1.15$  years



# Long Term Cost Reduction

- Low cost media
- Low cost maintenance
  - *No software upgrades or licenses*
- Easy scaling
- Low maintenance
  - *Especially counting systems*
- Reduced labor cost





# Save \$\$ & Get Better Data

## ***Call Protean***

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