



Protean Instrument Corporation

Automating Air Monitoring Workflow

with

TRAC

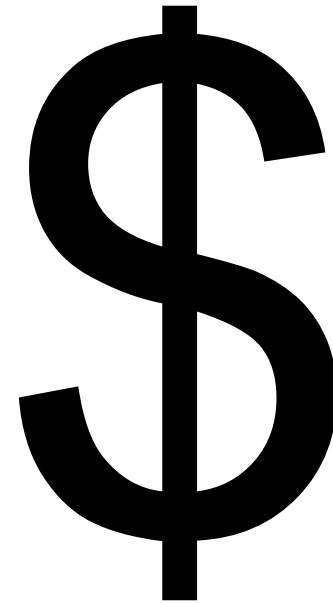
“Totalized Retentive Air Collection”





Manual Air Sampling

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





Manual Air Sampling

- **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

- *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

- **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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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

- 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

- **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?

- 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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