DIAGNOSTIC NEWS

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Diagnostic Air Patrol systems as part of wider area air monitoring networks.

Diagnostic Air Patrol systems (DAP 100, DAP 200, DAP 400) are an excellent alternative, or complementary monitoring system to Passive Air Monitoring Networks.

The benefits of including Diagnostic Air Patrol systems in air monitoring networks are many.

- Findings from passive samplers do not give any opportunity to "act immediately", when environmental violation occurs.
  Findings could be known as late as six weeks or more after violation. If the violation was caused by some problem of continuous nature, it can go on for number of days, before the situation is corrected and the environmental damage could be quite extensive. Also, if the situation will persist, perhaps the PASS sampler can get "saturated" and the total extend of the release never would be known.

  Diagnostic Air Patrol (DAP) system will trigger an alarm immediately after the 24 hr limit, or if shorter interval limits are violated.

- As a regulatory limits "watch dog" the monitoring system does not include any kind of operational assumptions. Monitoring is completely independent of what is going on at the well site or facility. The DAP system just collects data, without preconditioning or judgement.

  Diagnostic Air Patrol (DAP) system is providing the necessary "bench mark" information which can be used to further enhance the quality of the estimated pollution from the PASS system, in the network. It enables immediate quantification and pollution distribution for short intervals.

- Diagnostic Air Patrol system
  - is relatively *inexpensive*
  - it is *solar / battery* powered
  - daily *automatic zero* air drift adjustment
  - calibration is performed via "*hot swap*" for quick servicing
  - sensors are enclosed in *temperature controlled space*, for accuracy and repeatability
  - ambient air is drawn by *internal pump*, for accurate uniform flow
  - sensors *mounted internally*, no environmental exposure
  - data are obtained via (appropriate for the location) telecommunication *in real time* or periodically
  - system accommodates sensors for *SO2, H2S, NO2, Ozone and CO*

- Diagnostic Air Patrol is used as an **alternative to passive sampling**, whenever more information is needed (more than just a monthly average with uncertainty of the actual values of daily accumulations) or as an addition to passive sampling networks to enhance the quality of the network.

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TECHNICAL SPECIFICATION SHEET

SENSOR ASSEMBLIES:

Designed for Environmental Monitoring at **Low ppb Levels**

SO2

Range: 0 - 5000 ppb
Accuracy: 15 ppb (0.3% Full Scale)
Resolution: < 15 ppb

H2S

Range: 0 - 10,000 ppb
Accuracy: <100 ppb (< 1% FS)
Resolution: < 50 ppb

SENSOR ENCLOSURE (INTERNAL):

- **temperature controlled space** for accuracy and repeatability
- hot swappable for quick servicing
- **internal pump** for accurate uniform flow
- sensors mounted internally, no environmental exposure

SYSTEM OPERATING TEMPERATURE:

- 50 deg C to 65 deg C

POWER SYSTEM:

- self powered by a solar panel and battery bank, **to ensure 100 % uptime**

- durable AGM batteries designed for extreme environment

COMMUNICATION SYSTEM:

- cellular 1x modem with external 10 dB
- directional antenna, to ensure sufficient signal strength,
- 3m antenna mast
- **communication without financial limits**

EXTERNAL ENCLOSURE:

Weatherproof, fibreglass reinforced polyester enclosure.

METEOROLOGICAL SENSORS: (Optional)

WIND SPEED:

Type: 3-cup anemometer
Accuracy: within 0.1 m/s
Starting Threshold: 0.78 m/s
Operating Temperature: -55 deg C to +60 deg C

WIND DIRECTION:

Type: continuous rotation potentiometric vane

Accuracy: linearity within 1%

Starting Threshold: 1 m/s

Operating Temperature: -55 deg C to +60 deg C

TEMPERATURE:

Type: Beta Therm 100K6A Thermistor

Temperature Range: -35 deg C to + 50 deg C

READINESS FOR EXPANSION:

- each unit has a 3 m mast ready to accept Wind Speed and Wind Direction Monitor at the meteorological **acceptable height**.

- each unit has a data logger ready to absorb additional meteorological or other sensors **without** any internal **modifications**

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