FIELD EVALUATION OF THE ONLINE AIR QUALITY MONITOR (DIVEAIR2) AND DEVELOPMENT OF ADDITIONAL AIR SCREENING PROCEDURES AS REQUIRED BY THE *U.S. NAVY DIVING MANUAL*

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Current Funding: NAVSEA

PROJECT GOAL AND TASKS

- **GOAL:** **Assist in transition to the Fleet of the online air quality monitor (Diveair2) to ensure Navy compressors deliver safe diving air**
- **TASKS:**
  - **Test in lab first production air monitors**
  - **Evaluate NAVSEA air sampling kit and revise monitor/kit procedures as needed**
  - **Assist in conducting limited field test addressing questions such as frequency of calibration in field**
  - **Identify and test candidate water analyzers in laboratory and develop procedures for field use**

DIVEAIR2


291
O2 20.8 %
CO2 0810 PPM
CO 000 PPM
VOC 00.1 PPM
1-Menu
6-Start
ON
DIVEAIR 2
1
2
3
4
5
6
7
8
9
0

DIVEAIR2 FEATURES (1)

- Displays simultaneously O_2, CO_2 , CO, VOCs on backlit LCD
- Sensors:
  - O_2 and CO – electrochemical
  - CO_2 – non-dispersive IR
  - VOCs – photoionization detector (PID)
- Internal gas pump
- Visual alarms
- Datalogging

DIVEAIR2 FEATURES (2)

- “Peak Program”
- VOC filter for CO sensor
- Zero (then span) all 4 sensors simultaneously
- Calibrate at limits to minimize error
- Temperature compensation
- Nickel metal hydride battery
- Waterproof power supply – to power without batteries
- Passcode protection for calibration, alarms, datalogging, and some other functions

NAVSEA AIR SAMPLING KIT + more

TESTING OF MONITOR AND KIT

- Completed testing of 5 first production monitors in lab
- Completed testing and evaluation of NAVSEA air sampling kit in lab
  - HP whip, reducer, and monitor line acceptable for sampling
  - No specific guidance provided on how to use the monitor/air sampling kit to reliably test diving air
  - Important issues not addressed – operating on charger, effects of temperature

AIR SAMPLING KIT: PACKAGING

- Large volume of stuff – 3 cases, large cal gas cylinders
- Monitor loosely packed in small non-sturdy case
- Other packing concerns
- Air shipping capability
- ACTION: condense down to one medium case with smaller cal gas cylinders and improved monitor protection – meet air shipping requirements

NEDU AIR SAMPLING KIT

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OTHER PROGRESS

- Completed field testing of new NEDU kit at Norfolk and NEDU
- Completed lab testing of Vaisala dewpoint meter with DMP74B probe – developed field procedure
- Servicing and repair options under discussion in conjunction with the new hyperbaric Geotech O2/CO2 monitor
- **Next steps:**
  - Complete final report
  - Await NAVSEA guidance as they consider changes to the air purity standards