



# The Joint Services Sub Aqua Diving Centre and Analox, working together, in partnership

## Background

The **Joint Services Sub Aqua Diving Centre** (JSSADC) located at Fort Bovisands in Devon is the main UK based military recreational diving centre. They run diving courses for servicemen and women from the basic BSAC novice course through to the BSAC instructor's course. The training year runs from February through to December. Over this time the centre can have between 400 to 550 students throughout the diving year each student diving at least two dives a day.

## Compressor

Currently the centre has 1 compressor, this is located in a stand alone brick building separate from the main structure at **Fort Bovisands**. The compressor is maintained by the facilities maintenance manager who conducts quarterly fact air tests. And routine maintenance works on the system.

The compressor system is also maintained by engineers from the **Devonport Royal Dockyards**.

At the height of the training season the centre can be filling over 50 cylinders a day.

The compressor is connected to a reservoir cylinder that is maintained to 300bar. The reservoir cylinder topped up at all times.

## Testing

JSSADC currently comply with the **HSE testing requirements**, testing the system every 3 months using indicator tubes. The system is also tested when the filters are changed as well as sending a sample away for analysis at a registered lab once a year. This testing is carried out by the maintenance manager. The sample is sent to the Babcock Scientific laboratory for testing and they issue a certificate with the results.

The current cost of testing is approximately £1000 a year with a further £100 per year for test tubes from Factair.

This proved that the ACG would not allow air to leak from the system emptying the air reservoir cylinders.



## Trial

In August 2011 JSSADC were contacted and a preproduction ACG was taken to Fort Bovisands for the Staff and the MOD Diving Standards Officer (MOD DSO) to look at. JSSADC was identified as a potential trial site for the ACG.

As a result of this visit and after discussions with the MOD DSO and the commanding Officer for JSSADC a trial was arranged for late September 2011.

The aim of the trial was to gather real time data for the **ACG being used in a heavy use environment.**

The trial commenced on the 12 Sep 2011 and continued until the 12 Dec 2011. The ACG was turned on when ever the compressor was working either in a direct fill mode or to top up the air reservoir.

On several occasions the ACG was inadvertently left on for up to three days even when the compressor was not in operation with no ill effects to either the compressor air line or to the ACG. **This proved that the ACG would not allow air to leak from the system emptying the air reservoir cylinders.**

Throughout the trial the centre maintained the system and sending back the data logs for the device on a weekly basis.

During the trial period the Centre carried out a scheduled fact air test when the main filters for the compressor were changed. The centre also carried out the yearly routine laboratory test in accordance with the Def Stan 68-284 and BS EN 8478;2011. **The results for the routine test match those reading from the ACG for the same period.**

## Trial Results

Several points were highlighted during the trial chief amongst these were some anomalies with the water vapour sensor.

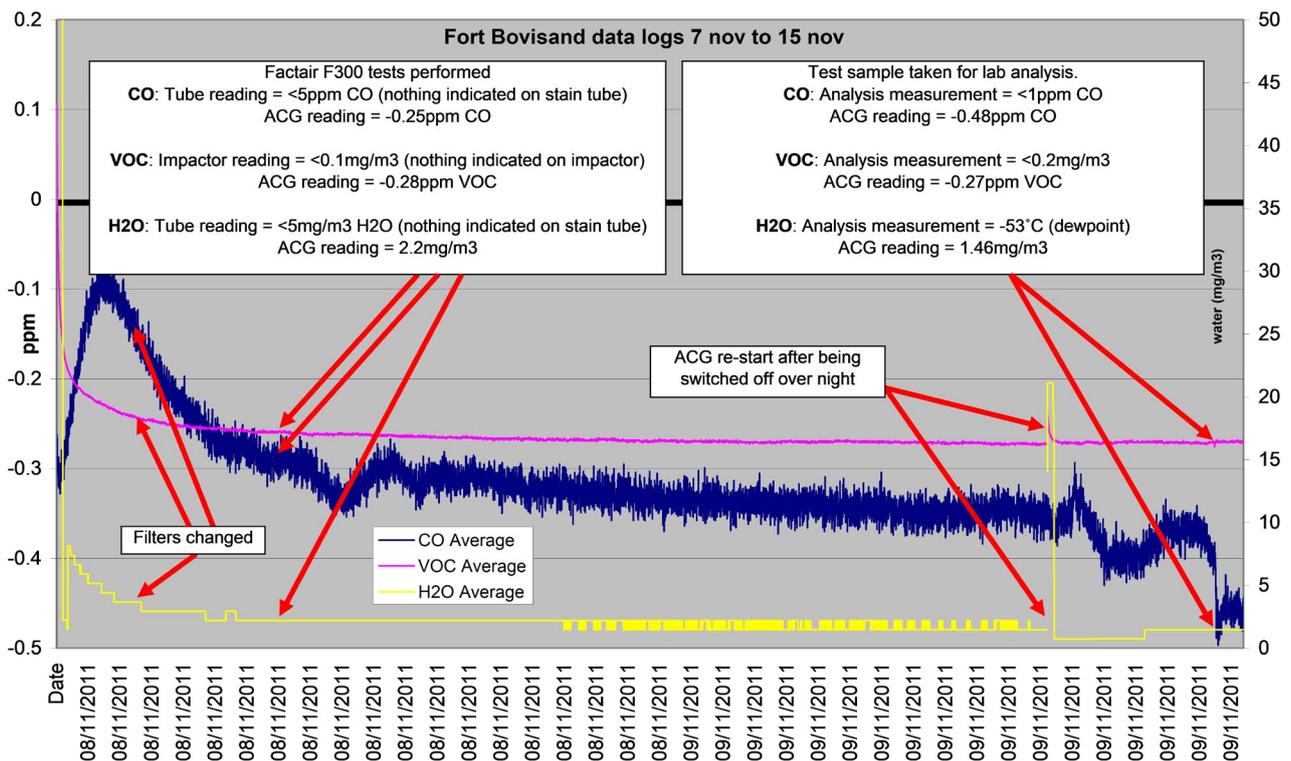
When first designed the ACG was manufactured with 2 filters in line taking the sample to the moisture sensor. The second filter was initially fitted to give additional level of protection to the expensive moisture sensor to protect it from contamination as this could potentially degrade the performance of the sensor. However, it was found that during the prolonged trial at JSSADC the filter itself was actually affecting the measurement accuracy of moisture in the gas sample as the filter can absorb moisture before the gas sample gets to the sensor, thus giving an inaccurate measurement of the moisture in the gas.

The solution to this was to remove the second stage filter and connect the compressor output directly to the moisture sensor without additional filtering.

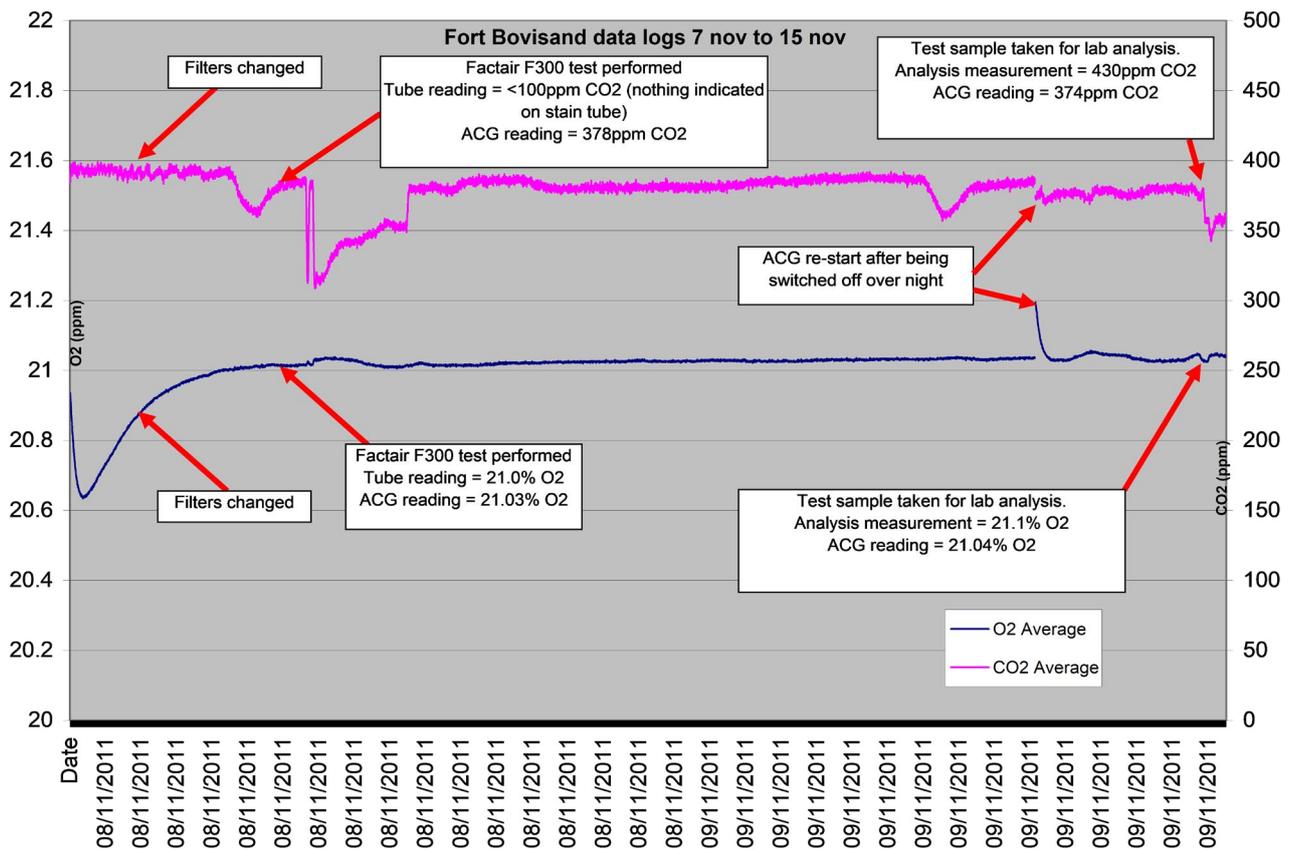
## Comparison data

Attached at **Annex A** and **A1** are copies of the data for the periods covering the Factair test and the Lab test.

## Annex A



## Annex A1



## Conclusion

In conclusion the extended trial at Fort Bovisand has been a **major success**, the trial allowed Analox to run the ACG in relating testing in a working environment. Where the system could be monitored and the data fed back to the design team.

**The data sent back has proved invaluable in identifying a cost saving alteration to the system.**

For more information about the ACG+ please get in touch today!

[Click here for the ACG+ Datasheet](#)

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