

Remote emissions monitoring system



- Automatic remote emissions monitoring system for marine traffic
 - Compliance of International Maritime Organization (IMO) regulations
- Operational 24/7
- For authorities and ports
- Fixed and mobile measurement stations

IMO regulations

- Today:
 - Local SECA areas 0.1% Sulfur cap
 - Global 3.5% sulfur cap
 - Global + Local NOx emissions tiers
- Incoming 2020:
 - Global 0.5% Sulfur cap
- Near future
 - New SECA areas

Sulphur regulations



Ship related premature mortality: 400,000 deaths annually

Case: FINLAND



Ships remote sulphur monitoring system in Finland includes:

Surveillance of the Northern parts of the Baltic Sea coastal areas (0.1% SECA region)

- 6pcs fixed KINE sniffer stations, installed in main seaways & ports
- 1pc mobile sniffer station, installed on boat and operated on campaign basis





- ✓ Cloud based service
 - Access anytime
 - Access anywhere
 - Desktop and mobile
 - Modular and scalable
- ✓ Online and History Data Access
 - Web Site / Reports
 - Automatic email reporting
 - Automatic SMS reporting
 - Exports: PDF, CSV, XML



AirNow SELECT SEARCH SAVE SEARCH DOWNLOAD C REFRESH Reports A Home Search (e.g. hanko sail fi cargo fsc>0.1 >20.9.2016 <21.9.2016T20:00 =20.9.2016 1.5.2016...30.8.2016 -bypass ~fjard samples fuelsample -scrubber) Profile TIME: DESCENDING + ADD FILTER \sim Reports > 0.05 ... Triggers × FSC (%) 3 Maintenance 0.8 0.6 0.6 [%] 0.4 SH 0.2 Work Hours $0d 5, 00, 00 \\ 0d 5, 00, 0d 5, 00, 0d 5, 00, 0d 5, 00, 0d 5, 05, 00 \\ 0d 5, 00, 0d 5, 10, 0d 5, 10, 0d 5, 10, 0d 5, 15, 00 \\ 0d 5, 10, 0d 5, 10,$ 0.2 \$ Admin Sign Out € Total: 103,Valid: 63, Duplicate: 40, Bypass: 0 \rightarrow 41-60 / 103 ← Wind Speed Nationality Samples Wind Direction FSC (from emission) Destination Туре MMSI Distance Length × Beam ETA Reliability IMO Time Uncertainty 3 m/s Station Name / ... FI 25° P 0.06 % ABC Cargo 230269881 1030 m 10-06T05:30 169 m × 27 m 🖈 Fair 6.10.2017 07:56 5010459 5 m/s 9% / ... ANN-SOFIE FI Station 1 11° P 0.14 % ABC Passenger 230171154 99 m 🖈 Fair 10-06T05:30 157 m × 25 m 6.10.2017 07:03 4845161 18 % 5 m/s / ... Station 3 MIMOSA FI 25° P 0.07 % ABC Cargo 230214425 79 m 10-06T03:00 163 m × 21 m ★ Good 6.10.2017 04:46 5582964 4 % Station 3 ARJA-LIISA

SnifferBuoy

Remote sulphur monitoring technology integrated inside navigational buoy

Upcoming for 2019 Markets



New Products for Authorities



Benefits for Authorities



Time

Continuous reporting
Online support for resource prioritizing



Money

Less work
 No additional people required



Hit rate

Continuous threat
No need to disturb compliant ships



Comfort

• Continuous automatic operation

•Data

- Real Time & Secure reporting
- Data 100% owned by client
- All measurements in one database



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