NitonUK

# Case Study

## Weir Floway

### Niton XL3t used to quickly and accurately confirm component specifications on vertical turbine pumps


**When Weir Floway wanted to introduce an in-house PMI (Positive Metal Identification) facility, the handheld Niton XL3t XRF analyser provided the perfect solution.**

Weir Floway produce vertical turbine pumps from a variety of metallurgies ranging from copper alloys to superaustentics, super-duplex, and stainless steels. Their products are utilised for applications including mining, oil and gas, and water requirements.

PMI is becoming an essential requirement for installations in the oil and gas industry, plus many other process industries. As a result, the suppliers to these industries are often having to prove that the materials used on their products are correct and conform to specification before they arrive on site. Growing customer requirements for PMI testing prompted the search for a reliable instrument that would allow Weir Floway to perform the necessary material verification in-house.

**Bill Ellis, Technical Director at Weir Floway, explains:**

"Customer satisfaction is important to Weir Floway, especially when it >>

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comes to verifying and documenting alloy materials and delivering a quality product as ordered. More and more customers were including a PMI requirement in their specifications and they also wanted to see the PMI procedure and personnel qualifications.

"We decided that offering in-house PMI was the best way to reassure our customer base that the materials coming from the supply chain were correct and to specification."

After viewing demonstrations from three suppliers Mr Ellis chose the Niton XL3t 900He as the ideal solution for his business. The XL3t 900He model is a non-destructive handheld XRF analyser capable of performing both heavy and light element analysis of alloys such as aluminium and titanium alloys, nickel alloys, super-alloys, stainless steels, and more.

Weir Floway manufacture some of their impellers out of a nickel/aluminium bronze and the 900 series instrument was therefore selected for its ability to quantify the lighter elements, such as silicon and aluminium, in addition to the standard heavier elements commonly found in these alloy types.

One feature of the Niton XL3t that the Weir Floway team particularly value is its extensive alloy grade library and the ability to continually update the library using specifications appropriate to their product range.

Mr Ellis continues, "Prior to our owning the 'gun', I could send a product for PMI and they might have an alloy library that picked up a metallurgy close to ours, but still misidentified what the product actually was.

"Now, when we do the verification in-house, we have it categorised so we know what ATSM category it is, and the report prints out that we have the right material for this project. For us, this is a one-shot benefit; there's no more going back and forth with outside testing facilities."

Weir Floway possesses certification in ISO 9001:2000, ISO 14001:2004, and OHSAS 18001:2007 for Quality, Environmental, and Health/Safety. Good standard material sourcing practices usually require some type of certification to be supplied with materials as a verification of their compliance. An in-house XRF alloy analyser allows Weir Floway to provide another level of quality assurance and ensure adherence to the requirements of their customers.

"We now have control over what we are testing," Mr Ellis concludes. "The data is encrypted and locked against editing, and we have the report print-out with our own serial number for the project; the operator's name; and the date. We have accomplished what we set out to achieve."

## The Niton XL3t Analyser

### The Niton XL3t Analyser provides a number of distinct benefits:

- Very easy to use – even by non-technical personnel
- Lab-quality performance in a handheld instrument
- Improved cycle time for high sample throughput
- Truly non-destructive testing with near instantaneous results
- From turn-on to trigger-pull to results in seconds
- Confident analysis with technology from the industry leader

### Technical Specifications:

**Weight:** < 3.0 lbs (< 1.3 kg)
**Dimensions:** 9.60 x 9.05 x 3.75 in. (244 x 230 x 95.5 mm)
**Tube:** Au anode 50 kV maximum, 40 uA maximum,
Ag anode with optional light element analysis package
**Detector:** High-performance semiconductor
**System Electronics:** 533 MHz ARM 11 CPU
300 MHz dedicated DSP
80 MHz ASICS DSP for signal processing
4096 channel MCA
32 MB internal system memory/ 128 MB internal user storage
**Batteries:** Two 4 (or optional 6) cell lithium-ion battery packs
**Display:** Adjustable angle, color, touch-screen display
**Standard Analytical Range:** >25 elements from S to U
**Optional Light Elements:** Additional elements Mg, Al, Si, and P via helium purge
**Data Transfer:** USB, Bluetooth and RS-232 serial communication
**Alloy Modes:** Metal Alloy, Electronics Alloy, Precious Metals
**Bulk Modes:** Mining, Soil
**Plastic Modes:** RoHS Plastics, Toy & Consumer Goods Plastics, TestAll™, Painted Products
**Other Modes:** Lead Paint, Thin Sample
**Data Entry:** Touch-screen keyboard, User-programmable pick lists, Optional wireless remote barcode reader

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