

# Special Metals Wiggin – a PCC Company

www.specialmetals.com



*“Wonderware Historian was the key breakthrough in making our data available as useful information to us...”*

John Powles,  
Utilities & EMS Manager,  
Special Metals Wiggin

## Insight for Industrial Energy Saving

by Wonderware United Kingdom

### Goals

- Energy Monitoring, Targeting and Saving.

### Challenges

- Reduce Energy use through accurate comparison with production data;
- Develop Energy per unit (tonne) trends through accurate correlation of energy and production data;
- Report environmental data.

### Solutions and Products

- Wonderware Historian;
- Wonderware Information Server;
- Wonderware InTouch HMI.

### Results

- Energy reduction;
- Payback within one year;
- Accelerated Insight;
- Good relationships with Environmental Authorities;
- Accurate data for energy tariff negotiations.

**Hereford, UK** - Special Metals Wiggin is a manufacturer of nickel alloys for demanding applications. The company is a large energy user and insight was required to provide detail from which savings could be targeted and sustained. As part of the company's lean initiatives energy monitoring and targeting was high on the list. Following research Special Metals Wiggin selected Wonderware Historian as the ideal data repository from which they could obtain meaningful 'industrial' energy data.

The Special Metals Corporation group of companies was created in the latter part of 1998 when Special Metals Corporation of New Hartford, New York, acquired Inco Alloys International, including its Huntington Alloys and Wiggin Alloys divisions. In 2006, Special Metals Corporation became a part of Precision Castparts Corp., a worldwide manufacturer of complex metal components and products. The company provides world-recognized INCONEL, INCOLOY, NIMONIC, UDIMET, MONEL and NILO alloys. These alloys are highly engineered to offer a superior combination of heat resistance, high-temperature corrosion resistance, toughness and strength and are used in the world's most technically demanding industries and applications. Special Metals Wiggin produce nickel alloys in all standard mill forms, from large ingots and billets to plate, sheet, strip, tubing, bar and wire.

## Lean Manufacturing

Special Metals Wiggin at Hereford practises lean manufacturing techniques, and energy saving was added to this improvement platform. Initial energy monitoring investigations were accelerated when the cost of energy abruptly increased owing to both tariff changes and to changes in batch sizes and changeovers. The primary energy sources are Electrical and Gas, but the company also monitors water consumption as part of an associated environmental monitoring requirement.

The company operates furnaces, forges and forming machines that are energy intensive. However, it was quickly realised that simple 'commodity' energy metering and thus energy reduction was inadequate to meet the requirements of industrial usage. Whilst total energy consumption is recorded the more useful information is the correlation of energy usage per batch, per part or per unit of mass. With this

specific knowledge process and operational improvements, and economies, can be made.

Full and careful consideration had to be given to energy data acquisition, storage and reporting as there are 360 electricity/gas sub-meters on site. The company took the usual early-day actions and realised that the only way to sustain improvements as they were made was to automate the process, and provide reports that were instantly useable by first line operations managers. This requirement raised the issues of energy data acquisition and where to store the raw data for convenient and useful information reporting.

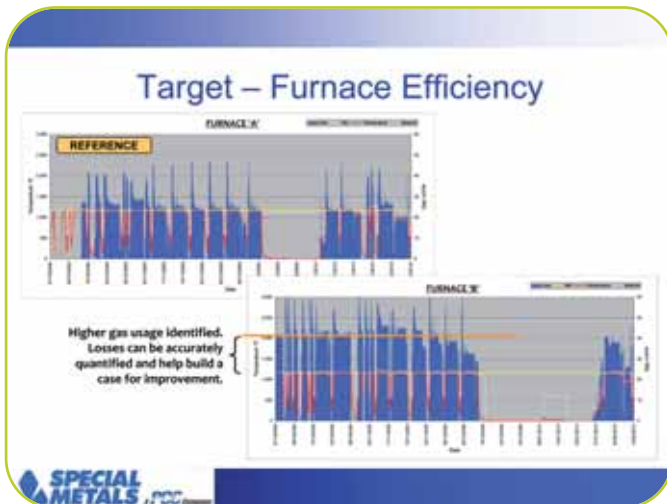
The data acquisition was helped by the gradual replacement of sub meters to a type that had Modbus connectivity and by interfacing these to Ethernet by use of mini-plc's. Data storage was initially investigated using a standard SQL database but it was found that the requirement to cross refer between real time process and real time energy data was unsatisfactory. The company needed an historian that could deal with vast amounts of data at high acquisition rates, and provide accurate chronological storage.

## Wonderware

Special metals Wiggin had previous experience with Wonderware InTouch HMI (Human Machine Interface), this being delivered as OEM on various machines within the plant. It seemed appropriate to follow this path and discussions were held to evaluate the suitability of Wonderware Historian. This was the breakthrough that the company needed as all previous issues with time related data correlation simply disappeared.



Nickel alloy products.



Gas usage analysis.



Energy tracking.

Wonderware Historian is a high-performance real-time database for historical information. It combines the power and flexibility of a relational database with the speed and compression of a true process historian, integrating the office with the factory floor or any industrial operation.

Wonderware Historian is designed to collect a wide variety of plant data, at full resolution and very high data rates, ensuring that decision-makers at all levels will have the data they need to drive vital productivity improvement initiatives.

Wonderware Historian is hundreds of times faster than standard database systems and saves data in a small fraction of the space. Advanced data retrieval modes enable plant personnel to quickly generate the detailed, focused information needed to accelerate the decision-making process and provide access to the right information when a problem is identified or an opportunity uncovered.

Wonderware Historian completely met Special Metals Wiggin's known and anticipated requirements.

Initially the use of Wonderware Historian and the number of data points to be collected was used cautiously; however, experience has shown that it can acquire data at the rates and volumes that is required without compromise, the product now being fully deployed.

Training was undertaken in the training school at Wonderware UK's headquarters in Cheadle, South Manchester, and additional specialist consultancy was also deployed to make sure that the highest benefit was delivered.

## Reporting

Reporting of the energy and production data as user information is achieved by the ease of integration with Microsoft Office – using Excel and embedded spreadsheets and graphs within Microsoft PowerPoint – this is accessible directly and also through the company's intranet portal. The target beneficiaries are first line operations managers, who receive a comprehensive process view from which they can sustain continuous improvement and monitor changes as they make them, or as they occur. The correlation of energy per kilo is made within the spreadsheet. A key aspect to the presentation of the information is trend graphs, and a projection of current energy usage to year end, allowing operations managers to run processes so as to avoid exceeding annual budgets.

Improvements in energy consumption are based upon highly reliable information that is used for investigation as well as recording. Frequently this has been to investigate energy reductions (energy per Kilo) where an accumulation of actions has delivered a measurable benefit.

Reporting is the key to the success at Special Metals Wiggin, the company is currently evaluating Wonderware Information Server which has the performance to meet all their requirements (including web browsing) and will provide interactive reports that can for example be drilled down for 'a closer look'. This will make reporting simpler and the task of report development for their ongoing continuous improvement programme less onerous, with the potential of 'self help' for users requiring specific information.



Commented reports.

### Investment Repaid

Expenditure on this stage of the project was justified on a basis of 18 month payback, this was achieved in 8 months – with ongoing benefits being delivered each day as the clearer, production operational energy picture is now in view.

Mr John Powles, Utilities & EMS Manager, Special Metals Wiggin, said, “Energy cost is directly transferred to other expenditure benefits,” adding, “Wonderware Historian was the key breakthrough in making our data available as useful information to us, we anticipate that the current programme to integrate this with Wonderware Information Server will complete the task and provide us all with vastly improved insight into our energy usage and production methods taken from an energy view.” John also said of the supply and regulatory issues, “The detailed information provides a better basis for discussion of tariffs with suppliers and the associated water and other environmental data allows us always to have a positive dialogue with the Environmental Agency.”

Special Metals Wiggin is on a journey which is becoming easier to navigate through insight into many issues within the plant. Their programmes are built around sustainability based upon accurate and timely information – Wonderware Historian making a measurable contribution to this.

---

This document was realized thanks to the support of: Special Metals Wiggin.