

Valinox Nucléaire

A massive expansion in France and China



A world leader in steam generator tubing manufacturing, Valinox Nucléaire is a thriving enterprise undergoing expansion to keep pace with global demand. With strong commitment from its parent company Vallourec, Valinox continues to invest in R&D to produce products of exceptional quality. The company's history stretches back nearly four decades but these are surely the most exciting times Valinox has ever faced: by the end of 2013 its manufacturing capacity will have quadrupled in just five years thanks to a €120 million investment plan.

By Joanne McIntyre

Valinox Nucléaire was established in 1974 when France launched its nuclear program. Since then it has supplied over 360 steam generators tube bundles to every type of Pressurized Water Reactor (PWR) around the globe. Owned by the Vallourec Group, Valinox has flourished under the wing of this powerful parent company. The company COO Mr. Gérard Kottmann outlined the company's history from his office in Montbard, France. "The nuclear industry got off to a strong start but the Three Mile island and Chernobyl incidents largely reduced the market to after-sales and maintenance activities. When the original alloy 600 PWR steam generator tubes proved to have problems with stress corrosion cracking beyond 10 years service, we were in a unique position to supply alloy 690 tube bundles through the 1990s. Post

2000 the market experienced a severe downturn and this is when the backing of the Vallourec group was so important. The Directors believed that the nuclear industry would recover and were

prepared to continue to invest in Valinox. It was quite a visionary stance in those days! We were also supported by EDF and AREVA who placed advance orders. By 2005 activity started to increase as



Gérard Kottmann, Valinox Nucléaire COO.





Denis Boulinier, Operations Manager (left) and Philippe Tardif, Marketing Manager.

we developed sales to China and Korea; indeed we were the first supplier to establish a presence in the Chinese market, via AREVA (called Framatome at that time) and have never looked back. In 2005, 90 people worked in the mill manufacturing 300 km of tubes per year; by 2008 we were manufacturing 1,800 km/year."

Three step expansion

Today Valinox Nucléaire is in the midst of a wide ranging expansion plan. "The first step was to eliminate bottlenecks by streamlining the handling facilities which increased production capacity by 30%," continues Mr. Kottmann. "In 2008 the decision was made to build a new mill. In the meantime we implemented the second step of the expansion, which was to move up to 24 hour, 7 days per week production which added 10% to our capacity. The first stone of the new mill – on the same site in Montbard - was laid 16 October 2009. Barely 14 months later the mill is nearing completion with all the machinery installed and undergoing commissioning. With long term orders from customers worldwide we have a solid base load of production for many years to come."

The investment in the new mill totaled over €70 million, making it one of the biggest investments in France in recent years. "We are very proud that the Vallourec group approved the investment and reconfirmed its commitment to this industry," smiles Mr Kottmann. Over the years the existing Valinox facilities were regularly upgraded, so all products will be produced to the same standard whether they are produced in the new or the existing facility. "While the majority of our steam generator tubes are U-bent in alloy 690, we have some customers who want another design or material, such as our Indian

clients," continues Mr. Kottmann. "To streamline production the new mill will be used solely to produce U-bent 690 tubes; other products such as square bent or alloy 800 products will be produced in the existing mill. Both mills will be staffed with the same level of expertise."

For the new mill the company chose to install the same brands of machinery of latest generation design as in the existing facility for ease of maintenance and to provide proof of continuity for customers. The pilger mills are from the German firm SMS Meer, while the hydrogen furnaces and highly specialized vacuum furnaces are from highly specialized European OEMs. "All 690 tubes must be stress relieved, requiring a half day treatment in

A word from the CEO, Mr. D. Richardot

"In 2013 Valinox Nucléaire will have quadrupled its 2008 capacity and will provide over 50% of the world's available capacity in steam generator tubes. Vallourec is the global leader in the market for nuclear plants steam generators and naturally we are keen to hold on to our lead. We are therefore attentive to our clients' needs so that we better meet them. All forecasts agree that global demand for special tubular products for nuclear power plants will continue to grow. Vallourec is all set to take full advantage of this renaissance."



The facility is fitted with custom made, state of the art machinery to produce the highest quality of steam generator tubing.



The Valinox Nucléaire plant in Montbard, with the new plant on the right.

the vacuum furnace. The quality of our vacuum furnace is almost equivalent to that found in the space shuttle capsules.”

Next generation design

The new plant at Montbard is an impressive sight, spread over 13,000 m². Project Manager Paul Bounie joined the team in February 2008. “This is the most complicated project I’ve worked on so far,” explains Paul, “not just because it’s the largest but also because we must take so many parameters into account. Experience gained from the existing plant has been incorporated, although we are profiting from new technology.”

The building is constructed of a special MSH profile carbon steel pipe, made by Vallourec in Germany. “Architecturally we had many restrictions imposed both by the company and the local bylaws,” continues Paul. “Our plans were reviewed by the public organization Architect de France to ensure they comply with the codes in the historical Montbard area. Environmental considerations were given high priority and we’ve included many innovative features in this respect.” Large pools have been dug to collect rain water which is filtered and then used to cool the furnaces. Recirculation will reduce the amount of water sourced from a local canal by a factor of 100. The new double independent loop cooling system reduces water consumption and eliminates potential air contamination. Improved insulation has significantly increased the efficiency of the furnaces.



Paul Bounie, Project Manager: “The new mill includes many innovative features to improve efficiency and productivity.”

Skylights allow plenty of natural light into the facility, while new generation technology has reduced energy consumption by a factor of five. A hydrogen cracker, fuelled by natural gas, was installed so the volatile gas is no longer trucked to the site.

“Each of the three sections in the new mill is independently insulated with a special framework to absorb vibrations and sound,” continues Mr. Bounie.

Expansion in China

Committing €70 million to build a new mill in France is not the full extent of the Valinox’s investment plans. “Our strategy is to meet market demand and today the most promising market is China,” continues Mr. Kottmann. “While the

Vallourec Group already has facilities in China, the country doubling its target for nuclear generation by 2020 raised the question for Valinox Nucleaire of how to meet market demand in steam generator tubing and provide an acceptable lead time there. In 2010 we decided the answer was to construct a new mill in Guangzhou at a cost of over €50 million. We chose the location for several reasons; our biggest local customer is located there and it’s a well serviced area with a strong French presence. The first stone will be laid 26 May this year, construction will be completed by mid-2012 and it will be producing at full capacity by 2013.”

The new mill will be staffed with mainly Chinese operators with a few Chinese

Burgundy Nuclear Partnership

Valinox Nucléaire was instrumental in founding the Pôle Nucléaire Bourgogne (PNB) - Burgundy Nuclear Partnership - in 2005. Gérard Kottmann, who is President of the PNB, explains its function: “The partnership is encouraged by local authorities and the French government to foster research and development in the nuclear sector. We are mainly active in the heavy components and associated services for nuclear reactors and pressure vessels, with members involved in forging, tubing, machines, NDT, engineering, handling, deconstruction and decommissioning etc. The PNB now has 150 members across France and we’ve travelled to the UK, Italy, USA, India and Korea to promote collaboration with French companies and research facilities to reduce lead times, propose new products and solutions, technologies and techniques, and to remain ahead of worldwide competition.”

“Today it’s not feasible for individual countries (with the exception of China) to develop their own independent nuclear industry. The PNB pools projects and competencies to create a critical mass. European countries must support projects together. The PNB is open to working with associations in other countries to foster joint research and developments.”

See www.polenucleairebourgogne.fr for more information.



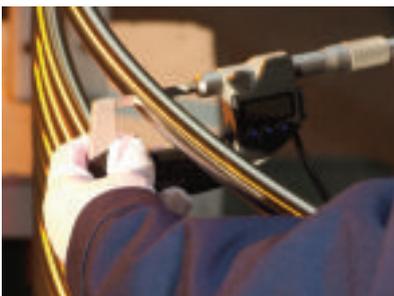


Valinox Nucléair's alloy 690 steam generator tubes are installed in power plants around the globe.

speaking ex-pats. Built on a 40,000 m² site the plant will produce 2,000 km of steam generator tubes every year.

Nuclear environment products

In addition to the steam generator tubing for which it is renowned, Valinox also produces nuclear environment products (NEP). Mr. Philippe Tardif, Marketing Director, explains; "While every nuclear plant needs hundreds of kilometers of steam generator tubing, it also requires a great deal of smaller tubular products in the reactor building. These tubes come out of the reactor vessel to the instrumentation and control rod drive mechanism for instance, and from above and below the main vessel. NEP are produced to very exact specifications mainly in alloy 690. They are required in many different sizes, often in very small quantities such as a few meters or even just a few centimeters, yet every one must be fully documented. We utilize all the resources of the Vallourec group to supply NEPs as a service to our customers. One of our best known



Every tube is rigorously tested and documented before being transported to the client.

products is the Control Rod Drive Mechanism (CRDM), also known as the Pressure Vessel Head Penetration Tube. This vital tube allows the control rods to be rapidly lowered into the reactor vessel stop/slow the nuclear reaction. CRDMs are produced to extremely tight tolerances; between 50 and 90 are required per reactor and we've delivered over 6,000 so far."

Valinox is one of only two companies in the world which can produce these tubes, as well as other products such as heater sleeves, vent pipes etc.

The right people: a key quality factor

Over the years Valinox Nucléaire has gained an excellent reputation for its performance in the nuclear industry. "Our most important asset is the knowledge our experienced staff bring to our products," explains Mr. Tardif. "Now our highly experienced operators

are being utilized in a unique scheme to train staff for the new mills through a mentor program which will result in the same levels of expertise across all of our facilities in France and China."

This consistency of expertise is essential in the nuclear industry, continues Mr. Tardif. "Utilities want an experienced partner they know they can rely on for the long term. This industry is restricted to companies who have strong financial, technical, and human resources to support their presence in the market. These are not products you can buy through a distributor; direct communication with the fabricator is essential."

Operations Manager Denis Boulinier reiterates how his experienced staff is instrumental in the company's success. "We have a strong philosophy of customer focus so it's essential that our staff understand our customer's needs and the applications for our products. Twice a year we shut down the whole plant for a day to hold an information day which every employee attends. All the managers are present to answer questions. We do this because we work for our customers, and we need to give our employees the idea of who they are and what they want. The expansion plans are offering lots of opportunities for our staff as new teams are created. Training is essential and our people understand why they have to do things in a certain way and are very aware of what is required of both themselves and the product. We're all looking forward to the opening ceremony on April 6 as it represents a great achievement for all of us."

Facts & Figures

Name:	Valinox Nucléaire, part of Vallourec Group
Founded:	1974
Headquarters:	Montbard, Burgundy, France
Products:	Steam generator tubing and nuclear environment products
Materials:	Nickel alloys and special stainless steels
Production facilities:	Montbard, France; Guangzhou, China
Production capacity:	2000 km/year (2010); 7000 km/year by 2013
Employees:	413 end of 2010

