Summary

- CTA designs and manufactures a testing ground for the characterization of torque tools and nut-bolt friction coefficients ........................................ 1
- obtains the transport license of a cask for high-burnup fuel in China .......... 2
- delivers water tanks to quench the thirst of ITER .................................... 3

- employees made a video about nuclear myths which ended finalist in a competition of the ANS ................................................................. 4
- and Westinghouse sign a frame cooperation agreement for the development of accident-tolerant fuel ......................................................... 5
- José Vicente Berlanga named new president ........................................... 6

- Samson Ringo supply of Control Valve for molten salt service for a Concentrated Solar Power Plant (CSP) in China ................................. 7
- Self-operated control valves for the Actuators Air Supply Emergency System for Almaraz Nuclear Power Plant ................................. 8
- Supplies Control Valves for Mozyr Refinery (Belarus) .......................... 9

- celebrates its 10th anniversary .............................................................. 10

- will update the French fleet of nuclear simulators ............................. 11
- and Datel sign a collaboration agreement to provide advanced technological solutions ................................................................. 12
- is awarded an international prize in Russia ........................................ 13
ensa’s CTA designs and manufactures a testing ground for the characterization of torque tools and nut-bolt friction coefficients

The laboratory of metrology of the Advanced Technology Centre (ATC) of Ensa has designed and manufactured a torque test bed that allows the analysis of torque electric tools with all types of metrics and bolt lengths. It is also valid to determine the actual coefficient of friction in nut-bolt assemblies with different commercial lubricants.

As a real application, it has been used in an R&D study of different commercial brands of torque tools. This study allowed the contracting company to choose the best tool for their new production process and thus improve their productivity.
obtains the transport license of a cask for high-burnup fuel in China

Equipos Nucleares SA, SME (ENSA) has received the approval from the Chinese Safety Council (NNSA) for a Certificate of Compliance of its ENUN 24P container, for the transportation of high-grade fuel (> 45 GWd / MtU). This is an important success for the Cantabrian company, which becomes one of the few companies with a cask able to transport high-burnup fuel.

URC (Uranium Resources Company) requested Ensa to design, manufacture and supply a cask for the transportation of high-burnup fuel in P.R. China. The cask design was initially licensed in Spain, by the Spanish Nuclear Safety Council (CSN) and is now approved by the Chinese Nuclear Regulatory Authority (NNSA). This allows URC to safely transport high-burnup fuel in Chinese territory.

The licensing achievement of the ENUN 24P in Spain was an important step forward for the Spanish industry, since it has been the first container approved in Spain that allows the direct transport of high-burnup fuel. The ENUN 24P allows the transport of up to 24 spent fuel elements of PWR type (pressurized water nuclear reactor) by road, rail and sea.

With this new achievement, the ENUN 24P completes the number of containers already licensed by Ensa, adding to the ENUN 32P and the ENUN 52B.
delivers water tanks to quench the thirst of ITER

Four more water detritiation tanks have been delivered to ITER as part of its fuel cycle system. The components resulted from a contract signed between F4E and Equipos Nucleares, SA (Ensa) in order to design, manufacture and deliver them to the site of the project in Cadarache. Works for their fabrication lasted approximately two years.

Two tanks measuring 7 m³, known as “holding tanks”, will be used to store water. The two additional tanks, measuring 12 m³, known as “feeding tanks”, will be used to feed the fuel cycle system with tritiated water. The four tanks will be installed next to the six water detritiation tanks, also manufactured by Ensa, which have been on-site since March 2015, claiming the title of Europe’s first-ever components delivered to ITER. The biggest fusion device will count ten of these tanks in total in order to cater for the needs of its fuel cycle.

Why do we need a water detritiation system in the ITER Tritium plant? The answer is simple: because we need to recover the fuel to use it again to trigger off a new fusion reaction. Here is how it works in few simple steps: first, the two hydrogen isotopes (deuterium and tritium) are supplied to the machine through the Tritium plant; second, when the two isotopes reach the core of the machine they are heated at extremely high temperatures in order to fuse and to release energy; then, the fuel left from the fusion reaction, together with other gases, returns through pumps to the ITER Tritium plant in order to recover the tritium and use it in a future reaction.

Ensa, in cooperation with its subsidiary, ENWESA, has been responsible for the design and manufacturing of the four additional water detritiation tanks which will be part of ITER’s fuel cycle system. The expertise and commitment to innovation of Ensa have been decisive to consolidate it as one of the leading European manufacturers of components for the biggest fusion energy project.
employees made a video about nuclear myths which ended finalist in a competition of the ANS

After being the winner last year of the second edition of the contest “Talent Attraction” 2017 organized by the Spanish Nuclear Society, the group formed by four workers of ENUSA was invited to participate with its video “Nuclear Myths – ANS Contest” in the counterpart competition organized by the American Nuclear Society and, at this time, is one of the five finalists.

The winner will be decided based on the visualizations that each video has, voting until April 5 through the following link: www.surveymonkey.com/r/WHN5JZQ.

The link to the video “Nuclear Myths – ANS Contest”:

https://www.youtube.com/watch?v=NaglUSrCmmg
ENUSA and Westinghouse have signed a Frame Cooperation Agreement (FCA), to collaborate in the development of the EnCoreTM Accident-Tolerant Fuel currently underway in Westinghouse. This revolutionary design incorporates concepts like zirconium alloy cladding coated with chromium, silicon carbide ceramic cladding (“SiC”) and uranium silicide fuel pellets (U3Si2), and aims at greater tolerance for the temporary loss of coolant, derived from the experience at the Fukushima nuclear power plant.

The newly signed FCA establishes the framework that will regulate the different Joint Collaboration Projects (JDPs) to be launched between both companies. ENUSA will be able to make a valuable contribution to those projects based on the technical capabilities and the extensive experience in the commercial, engineering and fuel manufacturing areas.

In this sense, the first JDP will be formalized in the coming days and the objective will be to evaluate the application of the segmented rod concept as well as to develop models of ATF / EnCoreTM fuel behaviour, considering the first introduction of demonstration rods in the Byron nuclear power plant in the United States in 2019.

This first JDP will be followed by others in the area of codes and methods, spent fuel and fuel fabrication and inspection technology.

On the other hand, the position of ENUSA in the Spanish and EFG markets will facilitate agreements with customers to launch ATF / EnCoreTM demonstration programs in their plants.

The signing of the FCA will serve also to strengthen the technical and commercial relations between ENUSA and Westinghouse, formalized through the recently extended European Fuel Group “EFG” and License Agreements.
José Vicente Berlanga joined the 30th of July his position as the new president of ENUSA after being appointed by the Board of Directors on Monday 16th in substitution of José Luis González. At the General Shareholders’ Meeting, Mr. Berlanga took possession as a Board Member of ENUSA on behalf of the Industrial Participation Company (SEPI, in its Spanish acronym).

The new president of ENUSA replaces Mr. José Luis González, who has been in charge of the company for more than two decades. Mr. Gonzalez has received Mr. Berlanga on arrival at the facilities of the Centre that ENUSA has in Madrid. Throughout the day, José Vicente Berlanga has shown interest in knowing the values of the company, as well as the main business areas and projects that are underway. In addition, it has received information about the most important challenges ENUSA is involved in, such as the process of digitizing the company; the strengthening of the production and sale of technology on the international market; the negotiation of key contracts for the next years in the area of fuel manufacturing; or the good progress of the environmental area with the subsidiary Emgrisa.

On his first day at the helm of ENUSA, José Vicente Berlanga has told ENUSA executives that have accompanied him, his desire to strengthen shared complicity between company levels and collective responsibility, linked to current and sustainable real-life performance markets. Likewise, he has expressed his satisfaction of being able to continue and improve ENUSA in order to make a better company, positively evaluating the work done. Also, he has sent a first message of confidence to the staff in this new stage in which he will be fully involved, to implement the levels of quality and satisfaction necessary to increase even more the results attained in the last years.
Samson Ringo supply of Control Valve for molten salt service for a Concentrated Solar Power Plant (CSP) in China

Samson Ringo has recently concluded the manufacturing and Factory Acceptance Test of a contract to be supplied to Thermosolar CSP Plant in China for Beijing Shouhang IHW Resources Saving Technologies Company through Samson Controls China.

- This contract includes a control valve for molten salts service:
- Motor Operated Control Globe Valve 4” 300# BW ends
- Body: A351 CF8C – Trim: A182 F347H + Stellite hardfacing
- Maximum shut-off: 20 bars
- Maximum working pressure: 575ºC

Process description:

Concentrated Solar Power (CSP) technology is based in the reflection and concentration of the sunlight energy in a tower where there is a receiver with molten salts that absorbs this energy and reaching temperatures close to 600ºC. These molten salts are storage and used to generate steam that produces the energy in a turbine.

Service Challenges and Ringo Solutions:

For this severe service, there are some important technical challenges:

- Molten salts are highly corrosive at high temperature, in this case maximum working temperature is 575ºC
- Temperature can never go below 265ºC because the salts became solid and valve could not be operated. Considering the above challenges, Samson Ringo considered the following features in the design:
- All used materials are suitable for the high temperature and all of them are corrosion resistance; even valve has been supplied with a special graphite live loading double packing that includes a sacrificial anode to avoid corrosion.
- On the other hand, in order to keep the minimum required temperature to avoid molten slats becoming solid, the valve includes an electric tracing system on the bonnet.
Self-operated control valves for the Actuators Air Supply Emergency System for Almaraz Nuclear Power Plant

Ringo Valves has concluded the design, manufacturing and testing of Self operated control valves for the Air Supply Emergency System for the actuators of certain critical valves of Almaraz Nuclear Power Plant in Spain:

17 off Self-Regulated Control Valves 1 1/2” 900# Material SA182 F316, Nuclear Class NC3 and Leakage Class VI.

These are critical valves since their function is to assure the air supply to pneumatic actuators of certain critical valves of the plant in case of failure of normal supply, taking air for an emergency tank at 1860 psig and providing air to the installation in the outlet set pressure range of 72-115 psig. This pressure range as well as the required flow for the actuator’s operation is guaranteed provided that pressure at the emergency tank is above 150 psi.
Supplies Control Valves for Mozyr Refinery (Belarus)

Samson Ringo has completed the supply of a contract for the Heavy residue hydrocracking complex of Mozyr Refinery (Belarus).

This contract included the design, manufacturing and supply of 24 pneumatic cage guided globe control high pressure valves in following sizes and ratings:

- Rating 900#: 6”
- Rating 1500#: 2” and 6”
- Rating 2500#: 2”, 3”, 6” and 8”


This was a very challenging contract due to the severe service of most of the valves:

- High pressure drops
- High temperature service, up to 432°C
- Flashing services

Samson Ringo was able to size and design the valves with the proper trim designs for each case in order to provide a good performance for these severe services.
The Spanish Nuclear Group for Cooperation (SNGC) celebrates its 10th anniversary. It was established in 2008 by ENSA, ENUSA, Ringo Válvulas and Tecnatom to jointly address the then emerging Chinese market. Ten years later, it can be confirmed, that it was a wise decision as it allowed to approach, with a broad set of products and sufficient critical mass, a new market, distant geographically and culturally, but with important technological needs. The way travelled during this period has allowed to develop close relationships with the main actors in the Chinese nuclear sector, through the multiple successful projects finalized as well as through the investments made in joint ventures.

However, in the last 10 years the nuclear world has changed drastically. Traditional markets have migrated to others in less developed countries and new technologists have emerged and risen to leadership positions. Specifically, today, the Chinese companies are starting to launch their services in the new emerging markets and the SNGC has positioned itself to support them in this adventure, not exempt from new circumstances and difficulties. In the same way, the SNGC is taking an independent interest in these new markets, where, in several cases, other technologists have more possibilities.

In summary, the SNGC has established itself as a powerful business development tool for its partners and hopes to increase it even further in the future, identifying new opportunities in the new markets.
The French company EdF, the operator of 73 nuclear reactors in France and the United Kingdom, has awarded Tecnatom a contract for the updating of the entire fleet of French 1,300 MWe nuclear power plant simulators.

This contract involves the incorporation of a set of modifications to the full-scope simulators in order to bring them into line with the current technical status of the plants.

The scope of the project includes the supply and updating of the documentary packages and also a series of tests to be performed at Tecnatom and at the DIPDE (Nuclear Fleet Engineering Division) platform in Marseille. The contract also contemplates an installation and testing phase at each of the full-scope simulators, distributed around France.

This new and technically highly complex challenge facing Tecnatom demonstrates our know-how and capacity to adapt to any nuclear reactor technology at world level and our technical staff’s ability to integrate with the nuclear standards of different regulatory bodies.

This contract will increase the volume of our activity in France, where we already have a number of projects in various other sectors through our subsidiary Tecnatom Metalscan.
and Datel sign a collaboration agreement to provide advanced technological solutions for satellite monitoring of strategic and critical infrastructures.

The agreement covers several development areas to provide solutions to various industrial markets such as nuclear power plants, railway infrastructures and electricity transport and distribution.

Datel is offering a service that allows users to remotely monitor the shifts and subsidence of infrastructure – such as bridges, pipelines, ports, mines and large buildings – globally with a precision of up to one millimetre (0.04 inches) – thus helping prevent accidents.

“Through this agreement with Datel we will be able to offer solutions adapted to the needs of our customers through the development of technology with high added value. We are confident that this agreement will provide us with opportunities in diverse sectors and will consolidate the long-term relationship between both companies” said Javier Guerra, General Director of Tecnatom.

On the other hand, Urmas Kõlli, CEO of Datel, stated that “our collaboration combines the experience of Spain in developing leading engineering solutions with the capabilities of Estonia to develop innovative digital solutions. We look forward to the collaboration with Tecnatom, as one of the world experts in engineering”.
is awarded an international prize in Russia

The tenth ATOMEXPO international conference, held in Sochi (Russia), recently, was the stage chosen for the presentation of the winners in the 5 categories of the ATOMEXPO Awards.

The five categories contemplated were: “Best Launch” (most promising projects in the implementation of nuclear programmes), “Nuclear Technologies for better life” (best projects for the application of nuclear technologies in non-energy-related fields), “Innovations for the Future” (the most disruptive and innovative technology projects), “Public Communication” (best communication projects on nuclear energy) and “Human Capital Development” (best projects on the management of human capital). Proposals were received from 51 companies and organisations from 22 countries and the jury was made up different nuclear industry experts.

Tecnatom, which competed in the area of Human Capital Development, was one of the four finalists and finally walked away with the prize for its project “Learning with Soul”, the company's new knowledge management platform, which will be publicly launched in the near future. The evaluation criteria applied in this category give great importance to the originality of the project, the ambition of the tasks and their implementation, the relationship between the resources employed and the results obtained and the possibilities of replication.

The three other finalists in this category were the International Atomic Energy Agency (IAEA), the World Nuclear University and the Hungarian PAKS nuclear power plant. The prize was finally awarded to Tecnatom for the innovative characteristics of the SOUL platform and for what, in the opinion of the jury, it means in terms of investment in the future.
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