

Ignacio Araluce

Director of the Paris WANO Center



The experience of the Spanish nuclear industry and its professionals is internationally recognized. For this reason, this issue of *Nuclear España* has an extraordinary distribution in various markets and is being published in English for greater circulation in countries with nuclear interests.

One of the most well known Spanish professionals in international organizations is Ignacio Araluce. As Director of the Paris WANO Center, he has talked to us about the most important initiatives of this association, which is an umbrella organization for the operators of all the world's nuclear power plants.

Ignacio Araluce is a physicist who majored in fundamental physics, and he has a Master's degree from the former Junta de Energía Nuclear.

He began his professional career in 1979 in Tecnatom, where he obtained the license of Nuclear Facility Supervisor, and he trained the first teams of operators of the second generation of nuclear power plants.

In 1981 he joined Almaraz NPP as head of operations and five years later became head of production. In 1988 he was appointed plant director, a post he held until December 31, 2001.

After that he was Director of the DTN and from there moved to Slovakia to direct the Bohunice plant support project.

In 2006 he was named director of the Paris WANO Center.

WANO, A UNIQUE EXPERIENCE

After the Chernobyl accident, nuclear operators around the world proposed that an international, private association be created in order to improve nuclear safety and reliability at all the facilities. Thus was the World Association of Nuclear Operators born in 1989 for the purpose of setting the best industry standards, "which are independent of those set by the nuclear regulatory bodies, the governments of different nations and the International Atomic Energy Agency", says the director of WANO Paris, Ignacio Araluce.

This is done by exchanging know-how and experience. And the fact is "there is no competition in the field of nuclear safety, we exchange all the experiences. We believe that a plant that functions perfectly well can always be improved", says Araluce.

As for organization, the Association is structured around five centers: four operating centers (Atlanta, Paris, Moscow and Tokyo) and one coordination and supervision center located in London, where the practices of all the centers are unified.

At this time, WANO is the only worldwide organization where all

the world's nuclear power plants are associated under one umbrella. In 2006, nuclear fuel reprocessing plants were also allowed to join WANO as members.

According to Ignacio Araluce, the Association's funding is an example of its independence. "The WANO budget comes from its members.

There is no competition in the field of nuclear safety, we exchange all the experiences ■



The qualification process, which will classify the plants by levels, will be ready in WANO Paris by 2015 ■

They are the ones that make the decisions", says the general director of the Paris center.

NEW EXPERIENCES AFTER FUKUSHIMA

The accident in the Japanese plant of Fukushima in 2011 has led to the performance of stress tests, one result of which has been the implementation of improvement programs in facilities around the world.

From the very beginning, WANO was asked to take part in the discussions about the stress tests, which "were very demanding on the operators. It is important to note that from the beginning, the operators were very involved in the process and were the first ones interested in learning everything possible from the accident so that their facilities would be increasingly safer", says Araluce.

In addition to the collaboration given by WANO to the regulatory bodies to prepare the stress tests, the Association reacted very quickly, says the general director of the Paris center. "Before the stress tests were made public, we drew up a significant operating experience report with recommendations to be implemented in all the world's plants. Furthermore, before we knew in detail the subsequent evolution and consequences of the accident, we were able to suggest a series of lessons learned, primarily about the mitigation of consequences". Since then, several documents have also been issued, with recommendations that the operators must implement and which will be reviewed by WANO to ensure compliance.

A NEW STRUCTURE

The Fukushima accident has not only led to the implementation of improvement programs in the plants. As Ignacio Araluce points out, "a committee was set up to analyze the influence of the accident on WANO's programs and strategies. This committee has been working for over a year and has submitted its conclusions to the Association's biennial meeting which took place in China,

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with a recommendation to the Board of Directors that was in turn submitted to the members' General Assembly, which approved some resolutions that have had and are having a very significant impact", says the general director of the Paris center.

Thanks to these agreements, the WANO staff will be increased four-fold by 2016. For example, "three years ago, 29 engineers worked in the Paris center, along with administrative and other categories of personnel; two years later we have 94 engineers and in another two years we will have 145. We are increasing our capabilities dramatically", says Araluce, who stresses the following actions:

- **The frequency of the Peer Review missions** has been increased from 6 to 4 years
- **An internal Peer Review** has been carried out to ascertain what has to be improved in the regional centers
- A very important **emergency preparedness** and accident consequence mitigation project has been established
- A **project to integrate design** into all WANO activities is being developed, and one of the objectives in all the reviews is that the plant design margins be maintained all through the operating life and, when a design modification is implemented, it will have previously been approved by the competent design authority

Araluce says that, although it is true that the stress tests have involved a considerable workload for the plants, at the same time the plants have not neglected their daily obligations because "the operator has to strike the right balance so as not to lose an operational focus, since the most important thing is for the plant to operate well every day".

PLANT QUALIFICATION

One of the recommendations of the WANO Board of Directors, made during its meeting held in the Chinese city of Shenzhen, was that the

Key WANO Programs

Considering that safety is the top priority of nuclear power plants operators, WANO has four key programs:

- **OPERATING EXPERIENCE.** This was the first program to be developed and is the backbone and foundational reason of WANO. Under this program, the nuclear power plants send to WANO all reports considered to be of interest, especially those regarding accidents and incidents; WANO then studies them and forwards the conclusions to all members. At present, this Association has a database of more than 6,000 reports. In addition, two times a year, it makes an in-depth study of special relevance for which it sends an international team to the plant where the incident has occurred in order to draw conclusions that can be useful for the other operators. This type of document contains recommendations that must compulsorily be implemented by all the members.
- **PEER REVIEW PROCESS.** This is the program that requires the most resources. It is an observation-based diagnostic process carried out by teams formed by professionals from different fields. All the plants are reviewed in according with objective operating criteria, and when the three-week review has been completed, a report is drawn up identifying the areas for improvement with respect to the best industry standards and the best practices. Before the Fukushima accident, the reviews were conducted every six years with an intermediate review at three years. The frequency has recently been increased and the facilities are reviewed every four years with an intermediate review at two years. "The Peer Reviews are considered by the operators as an effective tool", says Araluce.
- **TECHNICAL ASSISTANCE, BEST PRACTICES AND OPERATING INDICATORS.** Once the areas for improvement are detected in a plant, an action plan should be implemented. For this purpose, the Association contacts the rest of the operators and creates a team of experts, who are representatives of operators that have had a similar problem and have solved it, and they contact the plant that requires support. Based on operating indicators, all the plants can compare their main parameter results with the rest of the plants in the world.
- **PROFESSIONAL DEVELOPMENT AND TRAINING.** This initiative is intended to support leadership programs in the facilities and create discussion forums on certain issues of common concern to the plants.



Association undertake an assessment process, similar to the one run by INPO in the United States, as a complement to the Peer Reviews and that would conclude with qualification of the plants.

"In principle, the agreement in WANO is that this plant assessment process be carried out when the four operational centers in the world have a similar level in terms of quality of resources", explains Araluce. "Our Board of Directors has asked us from Shenzhen to begin to develop that process".

At this time, the criteria on which the final qualification of each of the plants is going to be based are defined, as are the elements to be taken into consideration on assessing their nuclear safety and reliability. In this way, all the world's plants will be classified at 4 or 5 levels, "a qualification that will be internal to WANO and will not be made public because the purpose, as always, is to exchange information between operators to improve plant operation", says the general director of the Paris center.

This initiative is intended to identify those units around the world that most urgently need help. "This process will allow all of us as operators to prioritize our support activities to the plants that most need assistance, which is something that INPO, with which we are jointly working, is doing in the United States and, consequently, the criteria will be very similar.

The qualification process is in the test phase and is due to be implemented in 2015.

THE FUTURE OF NUCLEAR POWER WORLDWIDE

Ignacio Araluce has extensive international experience and is very familiar with the development of the nuclear industry. In this respect, he acknowledges that "this is not exactly the right time to talk about the future of nuclear power in Europe". Fukushima has had a great impact on Europe, "although not based on technical reasons. The most negative effects have been in Germany, but also in countries such as Italy, Belgium and Switzerland".

However, the situation is mixed. For instance, in the United Kingdom, the governmental institutions clearly support nuclear power. The planned program, which promotes nuclear energy, is moving forward and is in good health, just as in countries like Russia and Ukraine. There is also very significant interest in the Middle



East: the United Arab Emirates, Saudi Arabia, Jordan".

Araluce says that "the economic crisis that Europe is experiencing - but that is not affecting other regions of the world - has influenced nuclear power for several reasons, including reduced demand on one hand and an increase in capital costs and financing difficulties on the other. This means that nuclear power, which is capital-intensive, suffers from the effects to a greater extent".

SPAIN AND INTERNATIONAL RECOGNITION

Spain has not escaped this general atmosphere that affects Europe. But according to Ignacio Araluce the country has an important advantage, which is that "it has a consolidated operating record, with tremendous prestige abroad and comparable to the best of the world's rankings, which serves as a point of reference for many operators from different countries".

"Furthermore, we have our own nuclear industry and a very good, fully independent regulatory body of international renown. In general,

Spain has very strong foundations which, in my opinion, will enable the nuclear facilities not only to reach the end of the normally established lifetime in good condition, but also to obtain a life extension as is happening in other advanced countries in the world", says Araluce.

He also recognizes that there are factors that distort this future. "That is the case of Garoña which, with an impeccable operating record, has been affected by decisions that make it economically unviable".

In any event, Araluce is clear on saying that "it is not admissible to consider an energy production mix in which nuclear energy is not a major component, since it contributes to a very significant strategic independence. It should be remembered that when a nuclear reactor is loaded, it has fuel for 18 months or two years, which provides great stability not only to the operator but also to the nation as a whole. Because of all these factors and when things are again calmer for decision making, nuclear energy will undoubtedly have a bright future", says Araluce. ■