

# ANNUAL Peport 2016











### **Edition**

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# PRESENTATION Summary of the year CNAT profile

# ACTIVITY REPORT Operations

Refuelling outages
Radiological safety and protection
Technological updating
Quality

# ] 5 ENVIRONMENT

Environmental quality management
Action plans
Legislation

Environmental audits

Environmental monitoring programmes

# 18 SOCIAL

People management Relations with society

# ALMARAZ NPP (UI-UII)

### **OWNERS:**

Iberdrola Generación, S.A. (52.687%) Endesa Generación, S.A. (36.021%) Gas Natural Fenosa Generación, SLU 11.292%

### LOCATION:

Almaraz (Cáceres)

### TECHNICAL SPECIFICATIONS:

Reactor Type: Pressurized Water Reactor (PWR)

Supplier: Westinghouse

Thermal Power: 2,947 MWt (U-I), 2,947 MWt (U-II)

Fuel Enriched Uranium Dioxide (UO2)

No. of fuel elements 157

Gross Electrical Output: 1,049.43 MWt (U-I), 1,044.45 MWt (U-II)

Net Electrical Output 1,011.30 MWt (U-I), 1,005.83 MWt (U-II)

Cooling: Open Circuit. Arrocampo Lake

### COMMENCEMENT OF COMMERCIAL OPERATIONS:

1 September, 1983 (UI) - 1 July, 1984 (U-II)

### CURRENT OPERATIONAL AUTHORISATION:

08/06/2010 for a period of 10 years

### CYCLE DURATION:

18 months both units



# TRILLO NPP

### **OWNERS:**

Iberdrola Generación, S.A. (48%) Gas Natural Fenosa Generación, SLU 34.5% Iberenergía, SAU (15.5%) Nuclenor (2%).

### LOCATION:

Trillo (Guadalajara)

### TECHNICAL SPECIFICATIONS:

Reactor Type: Pressurized Water Reactor (PWR)

Supplier: KWU

Thermal power: 3.010 MWt

Fuel Enriched Uranium Dioxide (UO2)

No. of fuel elements 177

Gross Electrical Output: 1,066 MWe Net Electrical Output 1,003 MWe

Cooling: Natural Draft Towers (River Tajo)

### COMMENCEMENT OF COMMERCIAL OPERATIONS:

6 August, 1988

### **CURRENT OPERATIONAL AUTHORISATION:**

17/11/2014 for a period of 10 years

### CYCLE DURATION:

12 months



### SUMMARY OF THE YEAR

During 2016, Almaraz and Trillo Plants have achieved very positive results for variables such as production, doses, accidents, SISC (Integrated Plant Supervision System) as well as with regard to safety.

The two Almaraz Plant units have recorded a combined gross production of 15,780 GWh. Unit 1 recorded a load factor of 84.43% and an operating factor of 86.77%. Unit 2 recorded a load factor of 87.17% and an operating factor of 89.10%.

The production of electricity generated by the plant was 8,553 GWh at Trillo, the fourth best recorded in its history, with a load factor 91.34% and operating factor 92.38%, respectively. The Plant has yet to experience any automatic reactor shut-down for the eighth consecutive year.

In addition, significant progress has been made on safety, such as the implementation by midyear in Trillo Nuclear Power Plant of the new nuclear safety model based on creating Civil Guard Response Units located permanently inside nuclear power plants. This new nuclear safety model, developed by the Ministry of Interior, responds to the need to tackle new threats such as jihadist terrorism through prevention, neutralisation and response to any attack or intrusion.

Also, Alternative Emergency Management Centres (CAGE) have been brought into service at

both installations as required after Fukushima, to strengthen management capability in case of severe accidents. The CAGEs have been operational since 30 November. Hydrogen recombiners have also been installed at the Almaraz plant to prevent its accumulation and concentration.

Also of significance during the year was the granting of all authorisations necessary for the construction of an Independent Spent Fuel Storage Installation (ISFSI) to manage spent fuel at the Almaraz plant, and in April, a total of 1 year and over 3 million hours was achieved without an accident with sick-leave. On April 8, Trillo received visitor number 350,000 at the Visitor Information Centre.

In addition, the CNAT Board of Directors approved the establishment of the Compliance Directorate as an independent unit with competence in regulatory compliance and the prevention and correction of illegal or fraudulent conduct. The creation of this Directorate complies with the provisions of the last reform of the Penal Code concerning the criminal liability of legal persons.

Finally, the Directorate General of CNAT approved the new operating regulations for both plants, which includes the new organisational structure at CNAT which was implemented on 1 January 2017.



### **CNAT PROFILE**

### **OWNER COMPANIES**

The shares of the companies that own the Almaraz and Trillo Nuclear Power Plants in terms of the installed capacity of the two plants are as follows:



Gas Natural Fenosa Generación, S.L.U.



51.2%

Iberdrola Generación Nuclear, S.A.U.



Iberenergía, S.A.U.



endesa 23.3%

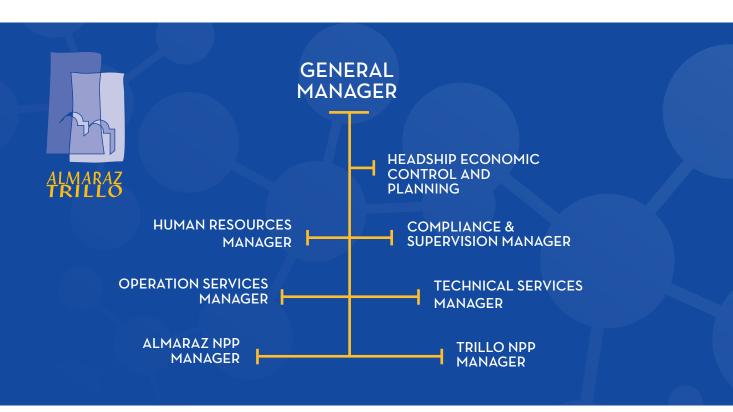
Endesa Generación, S.A.U.



Nuclenor S.A.

### ORGANISATIONAL STRUCTURE

The chart reflects the organisational structure for A.I.E. Centrales Nucleares Almaraz-Trillo which was implemented on 1 January 2017.









### MISSION, VISION, KEY STRATEGIES

The mission of Almaraz-Trillo Nuclear Power Plants is to produce electricity in a manner which is safe, economic, respectful to the environment and guaranteeing long-term production by optimum operation of the Almaraz and Trillo plants.

Our Vision aims to position the Almaraz and Trillo Plants between the benchmark Plants for safety, quality and costs, by employing a management model in which the development and participation of people enable higher levels of safety, productivity and efficiency to be achieved.

To achieve this mission and move towards the goals established in the Vision, Almaraz-Trillo Nuclear Power Plants develop strategy around the following key elements:







### **OPERATIONS**

### **ALMARAZ PLANT**

At the end of the year, gross electricity production generated by the Almaraz nuclear power plant was 15,780 million kWh, and net production was 15,174 million kWh.

Gross electricity production for Unit I was 7,783 million kWh, and 7,998 million kWh for Unit II.

Refuelling and general maintenance activities have been performed at both Units: at Unit I from 4 January to 20 February and at Unit II from 7 November to 16 December.

There was an automatic trip of Unit I after completion of refuelling due to the failure of a power supply busbar breaker.

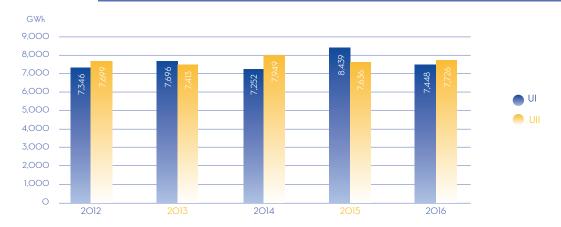
Also, the Alternative Emergency Management Centres (CAGE) were brought into service at both installations as required after Fukushima, to improve management capability in case of severe accidents. The CAGEs have been operational since 30 November.

Since late 2016, the Plant has been authorised by the Regulatory Authority (NSC), the Environmental Quality and Assessment and Natural Environment, DG, MINETAD Energy Policy DG and Almaraz Council to construct an Independent Spent Fuel Storage Installation (ISFSI).

### ALMARAZ NPP - GROSS PRODUCTION UI+UII



### ALMARAZ NPP - NET PRODUCTION UI+UII





### **TRILLO PLANT**

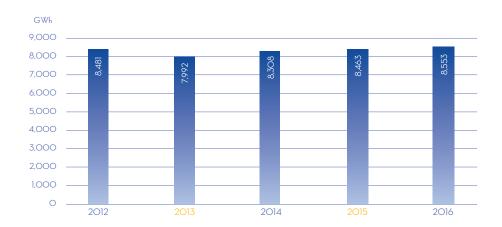
During 2016, the production of electricity generated by Trillo Nuclear Power Plant was 8,553 million kWh, the fourth best year since it began its commercial operation. The Plant continues without experiencing any automatic reactor shut-downs for the eighth consecutive year.

The new nuclear safety model has been implemented at Trillo Nuclear Power Plant since 30

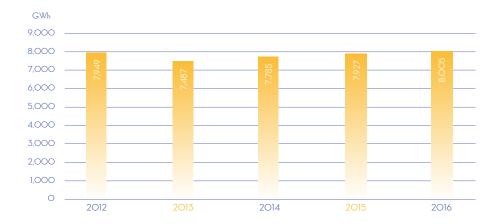
June, based on creating Civil Guard Response Units located permanently inside nuclear power plants.

In addition, the Alternative Emergency Management Centre (CAGE) required after Fukushima to strengthen management capability in case of severe accidents, has been operational since 30 November.

### TRILLO NPP - GROSS PRODUCTION



### TRILLO NPP - NET PRODUCTION





### REFUELLING OUTAGES

### **ALMARAZ PLANT**

In the first months of the year, 9,500 activities were performed during 48 days spent on the twenty-fourth refuelling and general maintenance of Unit I. In addition to routine work, 64 fuel elements were replaced, multiple preventive maintenance tasks were implemented and several design modifications were executed associated with different modernisation and safety improvement projects, such as making electrical systems independent (INDESEL) and the deployment of a redundant filtration unit in the fuel building (FREC), as well as others related to the installation of hydrogen recombiners and filtration systems.

The twenty-third refuelling and general maintenance of Unit II was carried out during the second half of the year and lasted 39 days. Over 9,000 planned activities were performed during the refuelling, including ultrasonic inspection of vessel head penetrations, visual inspection of the vessel, and inspection of the threaded zones of the flange, leak test of containment, spray system nozzle tests, and replacement of the set of dosimeters in accordance with the vessel external neutron dosimetry schedule.

### TRILLO PLANT

The twenty-eighth refuelling outage took place between 29 April and 27 May; over 27 days requiring the services of more than forty specialised companies involving around a thousand personnel in addition to the regular staff.

Over 3,470 planned activities were performed. Besides replacing 40 fuel elements, the upper and lower bearings were inspected, as well as the seals of the three main pumps of the primary circuit, YD10, and there were induced current inspections of the control rods and 100% of the tubes of steam generator 10. A capacity test of the redundancy 4/8 batteries was performed during the outage, as well as an electrical and mechanical inspection of redundancy 3/7, the generation breaker and the valves in main steam loop 20. In addition, the joints of half shell 3 of the condenser were replaced and improvements made to the trip circuit of the main pumps in relation to spurious activations in case of fire.

### RADIOLOGICAL SAFETY AND PROTECTION

During 2016, the installations operated completely normally, without producing any significant incident affecting nuclear safety or radiological protection, employees, or the plant environment.

The results obtained from the measurements performed show the dose rate for professionally

exposed personnel was once again well below legal limits. In the case of Almaraz, the staff collective dose totalled 835.84 mSv per person for the combination of the two units, and at the Trillo Plant, the dose totalled 280.17 mSv per person.



### TECHNOLOGICAL UPDATING

During 2016, CNAT continued according to plan with the investments as part of the process that has been implemented over recent years to improve safety, as well as maintaining plant availability by renewing obsolescent equipment.

All actions arising from the operating permit, and NSC stipulations resulting from audits and evaluations of the improvements implemented, have been completed at the Almaraz Plant. In this regard, in 2016 safety improvements have focused on completing projects such as FREQ (redundant filtration unit for air ventilation and filtration in both fuel buildings), adapting the remaining filtration units to RG 1.140 requirements, and INDESEL (implementing electrical independence measures for electrical systems in conformance with RG 1.75).

As part of the obsolescence renewal plan, actions have been completed such as replacement of recorders and cards, and tackling modernisation of the auxiliary feedwater turbopump control, by replacing the existing control with a new digital one, the first centre in Spain where this type of control has been introduced based on EPRI dedication guidelines for digital software, which received a favourable report from the NSC. This replacement has been performed successfully at U2 and is planned for U1 in 2017.

In addition, the manufacture and factory testing of the new refrigeration units for the Control Room and Breaker Room have been completed. These units use a refrigerant gas which has no adverse effect on the ozone layer. Implementation is scheduled for 2017 and 2018, and completion of the detailed design of the required modifications is in progress.

At Trillo Nuclear Power Plant and as part of improvements to the safety of the installation, implementation of the changes resulting from IS-30 have continued, and these included enhancements to provide 4-hour autonomous lighting for escape routes from fire areas with safety equipment, zoning and actions to improve fire protection (extension of automatic fire protection systems) in several areas and buildings at the Plant to comply with the requirement for protection/separation of trains required for safe shut-down.

At the Trillo Nuclear Power Plant, as at the Almaraz Nuclear Power Plant, as part of the obsolescence renewal plan, actions such as replacing recorders and cards have been completed in the I&C area, and the neumobolas system used to calibrate the nuclear instrumentation has been successfully renewed, and the supply and design of new level probes for the vessel has been finalised for implementation during the 2017 refue-



Trillo nuclear power plant neumbolas system



Almaraz NPP hydrogen recombiners

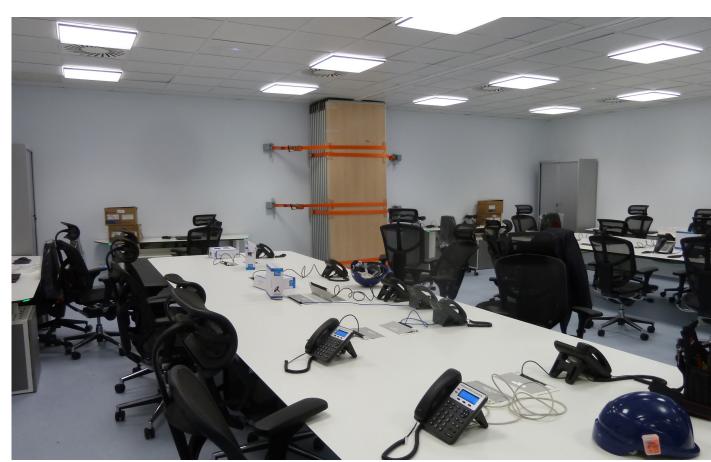


lling. On the electrical side, the manufacture and factory testing of new rectifiers have been completed and detailed design of the modification is to be implemented in redundancy 4 during the 2017 refuelling.

As part of the activities associated with the post-Fukushima improvements, the following were completed at both Plants: implementing the new TETRA wireless communications system, implementation of the H2 catalytic recombiners at Almaraz U2, completing the designs for installing the new filtered venting system for containment, which will enable controlled venting of containment to the pressures of its surroundings from its design pressure after an accident be-

yond the Plant design basis. The connections of the system with Containment have been implemented during the last refuelling at Unit 2, using one of the existing penetrations and after receipt of authorisation from MINETAD and a favourable NSC report.

On 30 November 2016, the respective Emergency Management Support Centres constructed at Almaraz and Trillo Plants were brought into operation after the required tests had been completed, and they received a favourable report from the NSC.



Almaraz CAGE CAT room



Finally, Almaraz NPP has continued activities related to the new Independent Spent Fuel Storage Installation (ISFSI), and after receiving authorisation in November 2016 from MINETAD for its construction, activities were performed throughout 2017 so that it would be available to accommodate ENUN 32P containers in the first half of 2018, following the required authorisation from MINETAD for stockpiling. In Trillo and as a consequence of using the new type of ENUN 32P container, activities required to adapt the installation and the current ISFSI to the new containers have been performed, with implementation scheduled for the second half of 2017.



ISFSI: current status of works

### **QUALITY**

Quality is intrinsic to all activities at CNAT and is the main source of confidence for our owners, the social environment, employees and business partners. Since 1995, CNAT's commitment to quality has been recognised by the Spanish Association for Standardisation (AENOR) by granting an official certificate, which certifies compliance of our Quality Management System with the UNE EN ISO 9001 standard for the production of electricity from nuclear sources. In 2016 AENOR carried out a follow-up audit to maintain certification of our Quality System and found it to be satisfactory.

Voluntary international evaluations were also requested to determine the degree of excellence of the organisation. These included the WANO Technical Support Mission (TSM) and

INPO Technical Exchange Visits (TEV), which evaluate specific aspects regarding best practices in the industry, and in 2016 there were TSMs for the Almaraz Operational Indicators and for Leakage Management at Trillo, and a Risk Management TEV at the corporate level.

Continuous Improvement is part of CNAT's organisational culture and that is why we manage annually about 8,000 corrective improvement and study actions, whose origin is not only independent internal evaluations (Quality Assurance audits and inspections), but also self-assessment by the units themselves of their activities and processes. In addition, trend analyses of low level incidents were conducted to enable identification of preventive actions to avoid incidents of greater severity.







### ENVIRONMENTAL QUALITY MANAGEMENT

AIE Almaraz-Trillo NPP's commitment to respect the Environment is expressed in the organisation's Environmental Policy.

The Environmental Policy drives the application of the Environmental Management System and its continuous improvement, reflecting the Board's commitment and constituting the starting principles on which the programme of annual objectives is based, and in more general terms, the activities of the company in relation to the Environment.

### **ENVIRONMENTAL POLICY**

The mission of A.I.E. CENTRALES NUCLEARES ALMARAZ-TRILLO is to produce electricity in a manner which is safe, reliable, economic, respectful of the environment and which guarantees production over the long term, by optimum operation of the Almaraz and Trillo nuclear power plants, and an Environmental Policy has been defined appropriate to its nature, magnitude and environmental impact, which serves as a reference for the establishment and review of objectives and environmental aims, and based on this, it commits to:

- Guarantee compliance with the environmental legislation in force and other voluntarily accepted requirements, maintaining an attitude of ongoing adherence.
- Operate the installations with respect for the environment, identifying, preventing, controlling and minimising, as far as possible, the environmental impact of its activities.
- Continually make improvements to all processes which could have environmental repercussions.
- Controlling and reducing, as far as reasonably possible, leakages, and conventional and nuclear waste.
- Motivating and training staff in respect to the environment, stimulating development of an environmental culture and communicating the Environmental Policy within and outside the Organisation.
- Introducing and maintaining updated a Standard Environmental Management System.

### **ACTION PLANS**

Almaraz-Trillo Nuclear Plants continued to develop significant activities in relation to environmental issues during 2016, which are incorporated in the Environmental Management Programme, the most significant of which are detailed below:

Both Plants have continued design modifications to eliminate the use of fluorinated gases which can potentially affect the ozone layer. Since this programme began, approximately 130 items of equipment have been replaced at both Plants.

At Almaraz NPP, the fillings in the cooling towers of the Turbine Building Cooling Water System have been replaced, an improvement directed against Legionella.

In addition, a major improvement in management of the waste toner has been undertaken by prior segregation, which has resulted in a reduction of a factor of about 5 in the quantities generated.

Trillo NPP has begun a design modification to install a floating barrier at the dam, to minimise



the impact on the Tagus river of intake cleanups. Installation is scheduled for 2017.

Also, at Trillo NPP, testing of the treatment with chlorine dioxide against Legionella has continued in the main cooling towers.

At the corporate level, actions have been taken aimed at reducing paper consumption in the organisation, by replacing the traditional distribution with electronic distribution.

Regarding high level waste constituted by the spent fuel extracted from the reactor, Almaraz NPP has obtained favourable decision regarding the Environmental Impact Statement issued by MAGRAMA and the corresponding administrative authorisation from MINETAD to construct an Independent Spent Fuel Storage Installation (ISFSI), which will be implemented in 2017.

### ENVIRONMENTAL AUDITS

From 26 September to 30 September 2016, the third-cycle of the Environmental Management System Audit (ISO 14001) was carried out by the Spanish Association for Standardisation and Certification (Asociación Española de Normalización y Certificación - AENOR), after the Certificate had been in force for eleven years, and was found to be compliant.

The auditors inspected the Almaraz and Trillo plants and the activities at the Power Plant Offices. Previously, in April, an internal audit of the System was performed, an obligatory part of the verification process.

There were several inspections by the Nuclear Safety Council on subjects related to the environment at both plants.

### ENVIRONMENTAL MONITORING PROGRAMMES

Almaraz and Trillo Plants have historically run several environmental monitoring programmes, with the aim of verifying the absence of significant environmental impacts as a consequence of their activities, whether of a radiological or conventional type.

# STUDY OF AQUATIC ECOSYSTEMS

Basically, two environmental studies are carried out in the surroundings of Almaraz NPP, which includes the Arrocampo and Torrejón reservoirs: an ecological study of the aquatic ecosystem and a thermal study of the reservoirs.

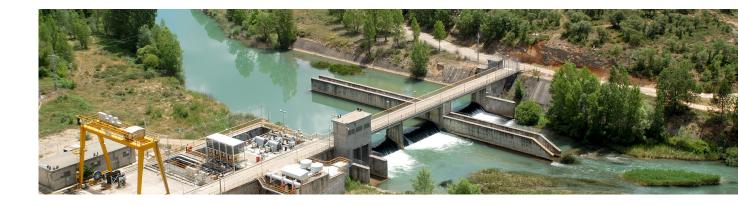
These surveillance studies are far reaching because the Arrocampo must also be considered as another Plant system, as it was built exclusively for industrial use to cool Almaraz NPP, and is used for final heat dissipation and therefore it is necessary to

have as accurate as possible knowledge of its characteristics in terms of its ability to perform its cooling function, in both the short and long/term. This requires intensive monitoring and surveillance of both physical and chemical parameters, especially temperature, as well as biological factors.

The environmental study of the aquatic ecosystems carried out near the Trillo plant consists currently of monitoring the river Tajo, where the thermal surplus discharge is made after cooling in the towers, and the general physico-chemical condition of the Plant, and the Entrepeñas reservoir, located downstream in the proximity of the Plant.

This study includes evaluating the water quality from the physico-chemical viewpoint, and its content of metals and other undesirable substances, as well as the characteristics of other elements of the aquatic ecosystem such





as sediments, benthic algae, phyto and zoo plankton and ichthyofauna.

## ENVIRONMENTAL RADIOLOGICAL MONITORING

The Almaraz and Trillo Plants exercise continuous strict control and monitoring of their own radioactive effluent emissions. Nonetheless, with the objective of verifying experimentally the impact radioactive elements might have on the environment, the plants have implemented an Environmental Radiological Monitoring Programme (ERMP) through direct measurement of radiation levels in the surroundings near to the installations, and of the content of radioactive substances from a series of types of environmental samples which are collected from a set of sampling points.

Comprehensive monitoring is carried out on all abiotic elements and living organisms represented in the ecosystems associated with all the natural resources of the surroundings of the plants (air, land and water).

Both Plants collect many samples annually for different types of analysis (gamma spectrometry, beta activity, environmental dose, strontium, tritium and radioiodines).

The usefulness of the analytical results is assured through parallel implementation of a quality control programme by another, independent laboratory, and by the implementation of a programme of independent monitoring (PVRAIN) directly by the Nuclear Safety Council.

Also, in the case of the Almaraz Plant, a collaboration agreement is maintained with CEDEX to enable this official body, reporting to the Mi-

nistry of Development, to carry out independent surveillance of the aquatic resources in the proximity of the Plant. Extremadura Council also carries out independent radiological monitoring, with the help of the University of Extremadura.

The results obtained during 2016 at both plants indicate that the radiological state of the ecosystems of their surroundings have experienced no significant variations during the year, with natural background values remaining unchanged, confirming the absence of environmental effects due to the leakage of radioactive elements, rendering radiologically insignificant any leakages from both plants.

### **METEOROLOGICAL STUDIES**

Almaraz and Trillo plants employ meteorological stations which are used continuously to measure and record the most significant parameters such as temperature, precipitation, wind direction and speed, humidity and solar radiation. The meteorological information is of relevance for various applications related to the environment, providing an excellent description of the climate at the site, after thirty years of monitoring.

The stations provide the required redundancy to ensure continuous availability of meteorological information.





### PEOPLE MANAGEMENT

CNAT consists of a team of 839 professionals characterised by their experience and high qualifications: 49% have a university degree.

There were 30 new recruits during 2016 and in all cases prior to their recruitment to their work place, they received initial training and specific training about their work place functions. New recruits facilitate staff turnover while ensuring the safe and reliable operation of the plants in the long-term.

CNAT staff, with an average age 50, are mainly concentrated in Extremadura (50%), Castilla-La Mancha (40%) and Madrid (10%). Also, the presence of women in the different groups within the company, stood at 9.65%, and there is an emphasis on the recruitment of young graduates with a broad qualification.

It should also be noted that CNAT staff are continuously supported by personnel from external companies during normal operation of the plants, and especially during refuelling.

### **CNAT STAFF**

CNAT STAFF	839
ALMARAZ NPP	419 (50%)
TRILLO NPP	333 (40%)
CENTRAL OFFICES	87 (10%)



### PREVENTION OF WORK-PLACE RISKS

Safety and health of people and the integration of prevention at all levels of the Organisation are a priority for CNAT. Proof of this are the actions performed during 2016 on the prevention of occupational hazards.

One of the most important factors in the prevention of occupational hazards in 2016 has been the decline in the number of accidents compared to 2015, a decrease of accidents with and without sick-leave of 34%. In the case of accidents with sick-leave, the reduc-

tion was 72%, down from 7 accidents with sick leave in 2015, to 2 in 2016. The good result recorded during refuellings, with 0 accidents with sick-leave during the Trillo refuelling, and during the Almaraz Unit I refuelling 24, and a total of 0 accidents during Almaraz Unit II refuelling 23. Another important milestone regarding the accident rate was the number of days without accidents with sick-leave at the Almaraz Plant. At 31 December 2016, the figure amounted to 557 days. Accident rates in CNAT in 2016 were:

### 2016 INDICES

2016 INDICES		
FREQUENCY WITH SICK-LEAVE (OWN AND COLLABORATOR STAFF)	0,42	
OVERALL FREQUENCY (OWN AND COLLABORATOR STAFF)	2,08	
SEVERITY INDEX FOR CNAT	0	

Another important aspect has been the decline in the number of incidents in the prevention of occupational hazards, at around 43%. It should not be forgot that that these incidents are precursors of accidents, and therefore supervision of work, adherence to procedures and awareness of prevention have been instrumental in reducing them.

Also noteworthy is the implementation of prevention observations during 2016. A total of 97

observations were conducted by Departmental and Section Heads, and Contracting Company managers. These observations are an effective tool to progress the integration of prevention, as well as a facilitator for supervising field work, and they enable the safe behaviour of individuals to be reinforced as well as the quality of work to be improved, by directly involving leaders.

Another measure implemented throughout 2016 and with impact on the integration of prevention,



has been dissemination of the Safety Minute, which was shown in all meetings, both Management and coordination, as well as via the Intranet. This tool has enabled the lessons learned from accidents and incidents to be disseminated, as well as expectations regarding prevention of occupational hazards and preventive measures for the different risks in our installations.

With regard to contractors, significant efforts have been made by all to meet CNAT's guidelines on prevention of occupational hazards. Several meetings have been held with Company managers to establish action plans to reduce adverse trends and a preventive culture index has been defined to classify them, considering the number of violations, accidents, incidents and Medical Service attendances for work-related reasons.

In addition, CNAT's Prevention Service employs a Health Surveillance unit at each Plant, which is responsible for monitoring the health of workers in the three workplaces, and their medical examinations employ all specific health surveillance protocols required by the risk assessment conducted by Prevention Technical for each post.

Also, this unit performs functions of health care, support in medical emergencies or accidents,

and maintains Level I accreditation for caring for irradiated and contaminated casualties.

With the aim of maintaining the health of our workers at the highest quality standards, in the planning of Preventive Activity for 2016, specific Health Surveillance activities, and a health promotion programme called "2016 Healthy Company Plan" were also introduced. The most significant actions of the Plan were briefings conducted at the three work centres on physical activity and healthy habits, and a Back-Care workshop taught by expert personnel which was well received by all personnel.

Colon cancer (faecal occult blood) screening and the oral pathology prevention campaign continued in 2016. A campaign was also conducted to prevent melanoma and dermatological pathology and a talk on "Keys to meet the challenges of everyday life".

Also, the internal magazine "Mundo CNAT" contained reviews about healthy eating habits and diets, and an article prepared by health surveillance units about Fatty Liver prevention. The reception of all briefings and campaigns was very favourable, and there was a desire to repeat them and to introduce new actions.





### **TRAINING**

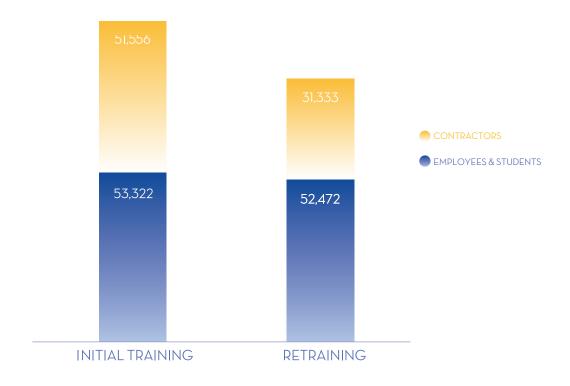
The skills of individuals working for the Almaraz-Trillo Nuclear Power Plants is one of the priority interest areas, and for that reason CNAT has permanent resources devoted to the planning and development of annual training plans for each work centre, not only with regard to initial training, but also for retraining and training in management skills.

In 2016, 535 initial and retraining courses were provided, which resulted in conducting 188,683 hours of training for 6,027 workers, including future plant operators (34 young students in training).

The part of the training programme dedicated to the retraining of workers represented 44%, and that corresponding to initial training was 56%. During the year, 831 CNAT employees (99% of the total) participated in training activities, totalling 68,646 hours of training, and the average training hours per employee was 83 hours, representing an annual day dedication ratio of 5%. The training programmes for future plant operators, prior to joining the workforce, resulted in the implementation of more than 37,148 hours training during the year.

Regarding monitoring the qualification of contracting personnel, CNAT continued to encourage improvements in their training, by providing support for training activities planned for their staff, and by arranging specific training action for these workers. In 2016, 82,889 hours of training were dedicated for 5,162 workers of contracting companies.

### GENERAL BREAKDOWN OF PROGRAM 2016





### INTERNAL COMMUNICATIONS

Internal communication is key to CNAT acquiring a fundamental and cross-company role. For this purpose, several initiatives have been launched, and others already internalised and recognised by the organisation have been reinforced.

The Internal Communication Plan, together with the Almaraz NPP Action Plan have outlined the directions to be taken during the year. CNAT employees use various communication channels that the company offers including the internal magazine "Mundo CNAT" and the monthly newsletter "En 5 minutos". During 2016, the video format was established as an internal communication tool highlighting the "Safety Minutes", targeted at occupational risk prevention.





### **RELATIONS WITH SOCIETY**

CNAT continues to have direct, fluid and stable relationships with institutions in surrounding areas, and in 2016 semi-annual meetings were held, two at each plant, with the mayors of nearby councils and with the media. All the information concerning operational results is presented at these meetings together with news about future plans and projects. 145 personalised meetings were also held with mayors of surrounding councils to study on a bilateral basis the relationships of the Plants with each municipality and potential collaboration channels. In addition, this year the management of both plants are actively involved in local Information Committees, convened by the Ministry of Industry, Tourism and Trade, and they provide all information required whenever necessary.

The commitment of Almaraz and Trillo NPPs to their neighbouring communities is reflected in the cooperation agreements that have been renewed in the fields of economic and social, environmental and educational development projects.

Similarly, CNAT has renewed cooperation agreements with news and press agencies most representative of the Plant environs, and these are used to promote the training and specialisa-

tion of Information Science final year students on nuclear sourced electricity production. A nuclear technology course for communication media professionals was also held at the Trillo installation, which is run annually.

The informative actions by CNAT on nuclear energy and on the operation of its plants is confirmed by the welcoming of 8,684 visitors this year to the Information Centres, 3,641 at Almaraz and 5,043 at Trillo. Between the two Plants, over one million people have visited the Almaraz and Trillo installations since they began operating in 1977 and 1981 respectively. Meanwhile, both the website (www.cnat.es) and the blog www.energiaymas.es, contribute to the task of creating closer ties with the nuclear world by providing relevant information about the activity of the plants and their environments.

To ensure continuous improvement of the quality of products and associated services, CNAT ensures that its suppliers are aware of and participate in the company's work processes and protocols.

Trading volume in 2016 was € 251.2 M. Of the total number of identified suppliers (762) with contract awards, 92.12% (702) are domestic suppliers.



### CENTRAL NUCLEAR DE ALMARAZ

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