National Atomic Energy Commission



OVERVIEW OF THE RECENT IAEA NATIONAL TECHNICAL COOPERATION PROJECTS ON URANIUM EXPLORATION IN ARGENTINA

International Symposium on Uranium Raw Material for the Nuclear Fuel Cycle: Exploration, Mining, Production, Supply and Demand, Economics and Environmental Issues (URAM 2009).

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Luis López lopez@cnea.gov.ar

INTRODUCTION





The uranium exploration and production activities in Argentina began in the 1950s.



The systematic exploration led to the discovery of several uranium deposits.



Consequently, seven mining centres were in operation in the country and produced a historical total of 2,500 tons of U.



In 1992, Argentina began to import uranium due to economic reasons, situation that progressively led to the closing of national production in 1999.



The CNEA is carrying out several uranium projects that have different degrees of development.

RESOURCES

Cost Category: < USD 130 / Kg U

GEOLOGICAL TYPE	REASONABLY ASSURED RESOURCES	INFERRED RESOURCES
Volcanic an caldera related Sandstone hosted	4,000 t U 3,330 t U	6,110 t U 2,620 t U
	7,330 t U	8,730 t U
	Total 16,060 t U	
		3





U DEMAND IN ARGENTINA

NPP	OPERATION START	REMAINING OPERATION	DEMAND
Atucha I	1974	2009 - 2030	814 t U
Embalse	1984	2009 - 2033	2,085 t U
Atucha II (under construction)	2011	40 years	3,572 t U
///		Total 6,471 t U	
			KER



RECENT AEA TC PROJECTS

ARG 3/007 "Uranium Favourability and Exploration in Argentina". (1993 - 1996)



ARG 3/008 "Prospection of Uranium and Other 2 Elements Using Gamma-Ray Spectrometry Surveys". (2001 - 2004)



ARG 3/012 "Geology Favourability, Production Feasibility and Environmental Impact Assessment of Uranium Deposits Exploitable by ISL technology". (2007 - up to date)



TC PROJECT ON U EXPLORATION



Development of new skills to carry out the uranium favourability program.



Upgrading of uranium exploration techniques.



Reprocessing and back-calibration of airborne gamma- ray spectrometry surveys.

FAVOURABILITY





This program consists of the regional assessment of the country's overall uranium potential, following the method applied by the National Uranium Resource Evaluation (NURE).

For these studies the national territory is divided into 57 research units.

In each of these units, the speculative resources, taking into account the presence of existing uranium deposits in the area or in a similar geological environment, are evaluated.

At present, this program is 55 % completed.











AIRBORNE GAMMA – RAY SPECTROMETRY



In 1978 - 82 the CNEA collected approximately 140,000 line kilometers of airborne gamma-ray spectrometry data.

These surveys which correspond to Patagonia and Pampean Ranges regions, were reprocessed and back-calibrated



AIRBORNE GAMMA – RAY SPECTROMETRY

These surveys were originally conducted for detecting potential uranium mineralizations. Then, stacked profiles and contour line maps were produced from the corrected counts for K, U and Th.





The production of a new digital archive enhanced the application of this information in the fields of geological mapping and environmental issues.



TC PROJECT ON GAMMA – RAY SPECTROMETRY

(ARG 3/008)



TC PROJECT ON GAMMA – RAY SPECTROMETRY

New capacities for the detection, processing and interpretation of gamma ray spectrometry data were developed.







TC PROJECT ON GAMMA – RAY SPECTROMETRY

A carborne gammaray spectrometer system was installed and calibrated to increase the national capability for uranium exploration.

2



TC PROJECT ON GAMMA – RAY SPECTROMETRY

The carborne system enhanced CNEA's ability to conduct ground-based surveys to support mineral exploration and environmental studies.

2



TC PROJECT ON SL

(ARG 3/012 - 14)

Associated with the IAEA Regional TC Project "Upgrading of Uranium Exploration, Exploitation and Yellowcake Production Techniques taking Environmental Problems into Account"







SL FAVOURABILITY PROJECT



Neuquina Basin (Cretaceous - Tertiary)

SL FAVOURABILITY PROJECT





SL EXPLORATION PROJECT



Uranium Permits San Jorge Basin (Cretaceous)

SL EXPLORATION PROJECT

Based on airborne radiometric surveys and the field geological reconnaissance, some exploration targets with ISL possibilities were defined. Drilling programs performed have given encouraging results.



SL FEASIBILITY PROJECT





Don Otto U Deposit (Cretaceous)



SL FEASIBILITY PROJECT



28

This deposit was exploited by underground mining, obtaining a total of 275 t U. The remaining Identified Resources are 216 t U and pilot tests are planned to determine the block leaching mining feasibility.









TC PROJECTS / INTERNATIONAL U COMMUNITY



















Australian Government Geoscience Australia







32

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FINAL REMARKS





The advancements in the nuclear field reached by Argentina have been historically supported by the existence of uranium mineral resources in the country.



The existence of favourable environments and advanced exploration programs, configure promising conditions to develop new uranium resources.

This would allow to increase the participation of the nuclear technology in the energy generation of the country.



The role of the IAEA Technical Cooperation Projects is highly relevant for improving the capability of Argentina to strategically plan and efficiently carry out its uranium projects.



NFA

THANKS!

Luis López lopez@cnea.gov.ar