

International Training Centre WNU School of Uranium Production

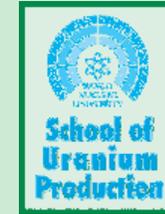
Three years experience

Jan Trojacek
DIAMO, s.e. Straz pod Ralskem



IAEA Symposium URAM 2009, Vienna

HISTORY



2004

IAEA/OECD/NEA Uranium Group meeting, Straz p. R., Czech Republic

First indication about a significant lack of skilled professionals

2005

IAEA Symposium on Uranium Raw Materials...

First significant discussion about necessity to organize any training centre focused on Uranium Mining Life Cycle

Counterparts: IAEA, OECD/NEA, WNA/WNU, DIAMO, s. e.

Development of the WNU School of Uranium Production Project

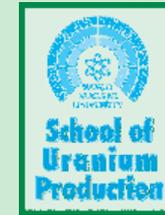
04/2006

Constituent meeting of counterparts: NEA, WNU, DIAMO, s. e.

Prague, Czech Republic



2005 YEAR SITUATION



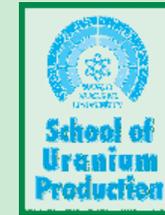
Past 20 years: depressed market – reduced production and industry consolidation

Large numbers of experts left the uranium industry

An entire generation of expertise was missing



NEW MOTIVATION



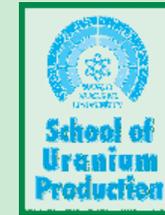
Nuclear renaissance prospects fuelling demand for uranium

Prices increasing significantly have stimulated interest

A key barrier to expanding production was a lack of competent personnel



REALITY



**Using the expertise and infrastructure of DIAMO and the Czech Republic,
in partnership with the World Nuclear University,
with support of international nuclear organizations**

INTERNATIONAL TRAINING CENTRE

has been created with aim to provide world-class training on all aspects of uranium production in support of expanded, environmentally-sound uranium mining throughout the world



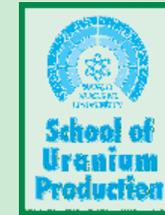
THE WNU SCHOOL OF URANIUM PRODUCTION MISSION



- to educate students on all aspects of URANIUM PRODUCTION CYCLE including exploration, planning, development, operation, remediation and closure of uranium production facilities**
- to improve the state of the art of uranium exploration, mining and mine remediation through R&D**
- to provide a forum for the exchange of information on the latest uranium mining technologies and experiences – best practices**



WHY DIAMO AND THE CZECH REPUBLIC?



Over 60 years of experience in uranium mining

**Existing and functioning mining infrastructure in
a unique environment**

Access to renowned universities

**Centrally-located and accessible from all over the
world**

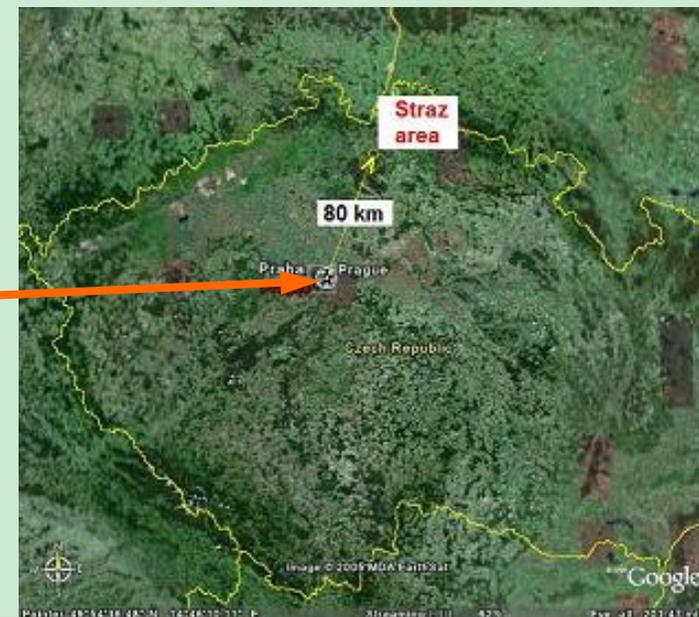
Reasonably priced living expenses



THE CZECH REPUBLIC



CENTRALLY-LOCATED AND EASILY ACCESSIBLE



DIAMO, s. e. FUNCTIONAL INFRASTRUCTURE



Active uranium mining and processing facilities:

- **Straz ISL mine remediation complex**
drilling centre, ISL wellfields, ISL chemical processing plants, ISL remediation facilities, certified analytical laboratories etc.
- **Rozna UG mine and U mill**

Active technical offices

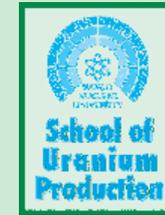
geology, hydrogeology, modelling, etc.

Rehabilitated areas of closed mines and mills

Experienced personnel



SOME EXAMPLES OF THE FACILITIES



TRAINING PROGRAMMES (1)



Courses in service:

In Situ Leach Mining (both alkaline and acid)

- Operators course (4 weeks)
- Executive course (2-5 days)

Exploration

- 4 weeks combined course on U deposits exploration and sandstone type deposits mining (ISL preference)

U mining & milling residues remediation

- 1 week course on waste rock piles and tailings pond remediation, environmental monitoring and radiation protection

Alkaline Milling (Processing)

- 1 week course focused on mineralogy, technological requirements and processing of U ores, tailings and water management, radiation and environmental protection and monitoring. Practical demonstration at alkaline mill GEAM Branch



TRAINING PROGRAMMES (2)



Other potential courses:

- **Conventional (underground) Mining**
- **Mine and Mill Water Management and Treatment**
- **Heap Leaching**
- **Best Practice in Uranium Mining Life Cycle**
- **Other courses and scientific visits upon request**



TRAINING COURSES FOR OPERATORS



Teaching approach for 4 week course:

**Six hours of teaching + two hours of
review/discussion daily**

A field visit to an ISL site each week or on request

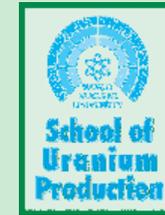
Exercises, homework and testing

Saturdays - social events outside the area

Sundays - day of rest



TRAINING COURSES FOR EXECUTIVES

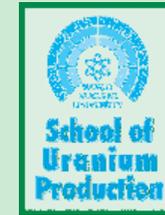


Three to five day programme for mid-level managers with some experience in mining and for governmental policy-makers/administrators.

Special presentations and discussions (face to face) of topics defined by attendants. Mostly oriented on strategic planning, feasibility studies, capital and operational costs.



ADMISSION



Open to all organisations and individuals interested in the tasks of the training centre.

Two ways for application:

- **Direct commercial contract**
- **Fellowship based on TC Project between IAEA and counterpart country or region**



THE SCHOOL EXPERIENCE TILL NOW



Since 2006 more than 50 participants took part in 10 different types of training courses:

ISL Operators course was run in September 2006 with seven attendees – six of them from China under the IAEA technical co-operation project and Pakistan Atomic Commission commercial participant

Three **Exploration** courses for China, Argentina, Latin America, Egypt and Bangladesh IAEA TC Projects – autumn 2007 and spring 2009

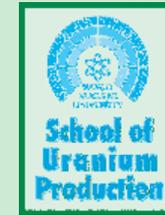
An **ISL executives** two weeks scientific visit under the IAEA - Argentina TCP – autumn 2007

A **tailings ponds remediation executives** scientific visit under the IAEA – Tadjikistan TCP – autumn 2007

A special one week technical visit of Indian group at Rozna Uranium mill for recognizing and consultation of **alkaline milling process** on commercial basis in September 2006



NEW TOPIC IN „EXPLORATION“ COURSE



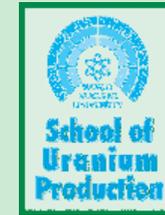
Since 2009, based on the Egyptian TC Project:

**new lessons on Geophysical exploration methods
are available:**

- **Theoretical principles of radiometers calibration**
- **Practical demonstration of radiometers calibration at
„Calibration facility“ near Pribram, Czech republic**



COMMERCIAL CO-OPERATION



In 2008 year a significant co-operation with Chinies partner has been established

Special training course of „DIAMO ISL Experience at the Straz deposit“ has been developed.

14 participants from BOG/CNNC took part in this course in November 2008

It is expected continuation of this activity for next several years.



CURRENT SCHEDULE OF TRAINING COURSES



Exploration of U deposits with special respect to sandstone type and ISL operation

Sept. 14 to Oct. 9, 2009

Open for both IAEA TCP applicants and commercial participants.

ISL Experience at Straz U deposit

Oct. 12 to 23, 2009

A commercial two weeks course for CNNC/BOG staff.

Other courses/scientific visits upon request.



NEW WEB PAGE DESIGN



Since middle of 2008 year a new design of the “School“ web pages is implemented:

Short description of School activities

Definitions of available training courses

Commercial price list

On-line registration

Web: www.wnusup.cz

www.diamo.cz

