ENVINET a.s.

IN NUCLEAR POWER INDUSTRY

Larisa Dubska, Director of Marketing and External Affairs
ENVINET a.s. GENERAL INFO

Established: 1995
Headquarters: Třebíč, Czech Republic
Basic capital: 2 mil. EUR
Turnover 2010: 16 mil. EUR
Staff: 200
QMS: Certified
ISO 9001, ISO 14001, ISO 27001, ISO 20000-1, OHSAS 18001

DIVISIONS

- Nuclear Power
- Project and Engineering
- Radiometric Systems
- Detectors Technology
- Scientific Instruments
- Laboratory Technology
- Industrial Automation
- Mechanical Production
- Software Development

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MAIN BUSINESS AREAS

PROJECTS, SUPPLIES AND SERVICES FOR NUCLEAR POWER

RADIOMETRY SYSTEMS AND RADIATION CONTROL

MANUFACTURING AND SERVICE OF RADIATION DETECTORS

SOFTWARE DEVELOPMENT AND IMPLEMENTATION

LABORATORY SYSTEMS AND TECHNOLOGIES

INDUSTRIAL AUTOMATION AND MECHANICAL PRODUCTION

Nuclear power
Industry
Defence & Security
Research & Medicine
Education

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DEVELOPMENT, PRODUCTION, SUPPLY, IMPLEMENTATION AND TECHNICAL SUPPORT OF MEASURING SYSTEMS FOR:

- Ionizing radiation monitoring and radioactive waste separation and characterization
- All types NPP laboratories (chemical, radiochemical, radiometrical, metrological, dosimetry, environment radiation monitoring, etc.)
- Primary coolant gamma spectroscopic monitoring
- Measurement of noble gases activity in the ventilation stack
- Gamma spectrometric detection of steam generator leakages based on N\textsuperscript{16} activity concentration measurement

- Own solutions
- Engineering and manufacturing background
- Implementation at Czech nuclear power plants and a number of NPPs in Central and Eastern Europe

CUSTOMIZED INFORMATION SYSTEMS AND SOFTWARE:
radiation situation monitoring; RW management & tracking; nuclear fuel and nuclear material registration; long-term NPP`s operation; process monitoring and evaluation; project management; inspections; laboratory data management; safety indicators tracking; etc.

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IMPLEMENTATION PERFORMANCE

- Characterization of all radwaste from Dukovany and Temelin NPPs (authorized by State Office for Nuclear Safety and Czech Metrology Institute for providing free release measurements of RW)
- Shift radiochemical control in primary and secondary circuits
- Analyses of RA concentrates and samples from RA waste treatment
- Sanitary loops operation in restricted area at Dukovany NPP
- Application of algaecide preparations to suppress the growth of algae in cooling towers

PREVENTIVE AND OPERATIONAL MAINTENANCE

- Systems for continuous measurement of water chemical treatment, primary and secondary circuit chemical parameters
- Spectrometric lines, technological PC, laboratory technologies
- Information centres and training centres equipment
- Camera systems of refuelling machine for nuclear fuel
IONIZING RADIATION MONITORING AND RADIATION CONTROL

- Radiation monitoring systems for NPPs and research institutes
- Equipment for radwaste characterization
- Radiological characterization of the nuclear equipment, components and buildings before decommissioning
- Installation, technical support and service of the National radiation monitoring system and early warning system
- IS MonRaS for radiation situation monitoring implemented at the National Crisis Coordination Centre
- Airborne/terrain gamma spectrometry monitoring
- Mobile radiometric laboratories equipment
- Radiation monitoring systems on the state boundary

- Pico Envirotec Inc. (our subsidiary in Canada)
  - Airborne Integrated Radiation Monitoring System
  - Mobile Integrated Radiation Monitoring System
  - Portable gamma ray spectrometers
  - In-situ measuring systems

Radiation monitoring system installed on the Czech Army (NATO) Mi-8 helicopter

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MANUFACTURING AND SERVICE OF IONIZING RADIATION DETECTORS

- Development and production of plastic scintillators and the NaI(Tl) scintillation crystals, scintillation detector assemblies
  - Unique manufacturing in the Czech Republic
  - Successful sales in foreign markets
  - Many years of production experience
- Service of ionizing radiation detectors in our own lab
- Supply, repair, calibration and service of semiconductor/scintillation detectors, spectroscopic equipment & lines

Spectroscopic line:
- Detector
- Shielding
- Analyzer
- GAMWIN Software
SCIENTIFIC INSTRUMENTATION

ENVINET is an exclusive representative in the Czech and Slovak Republics of:

- ORTEC – Ionizing radiation spectrometry
- Thermo Scientific – Radiometry and dosimetry
- Sun Nuclear – Radiology
- Pico Envirotec – Geophysical systems, air spectrometry
- LabLogic – Instrumentation for radiochromatography
- Solartron Analytical, Princeton Applied Research – Electrochemistry
- Senya OY – Collection of aerosols
- Signal Recovery – Signal processing

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SOFTWARE DEVELOPMENT AND IMPLEMENTATION

COMPLETE SOFTWARE SOLUTIONS

• Focus on nuclear power and industry
• Deep knowledge of operation, project management, metrology, radiometry, chemistry, radiochemistry, controlled aging and waste management

CUSTOMIZED SOLUTIONS

• WASTIS – radioactive waste management and tracking
• MBA – registration of nuclear materials and nuclear fuel
• INDI – process evaluation based on the optional indicators
• TIPOM – project and configuration management
• OPTIMUD – IS for Long Term Operation and components lifetime monitoring
• METROLOGY – metrological data management
• RADIS – radiochemical and radiometric laboratories processes covering
• GAMWIN – IS for gamma spectroscopic analysis
• MonRaS – IS for the National Crisis Coordination Centre
• CLARA – Chemical laboratory management IS
• INSPECTIONS – IS for complex planning of plant and equipment inspecting

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LABORATORY SYSTEMS AND TECHNOLOGIES

All types of laboratories (chemical, radiochemical, radiometrical, dosimetric, metrological, etc.) at NPPs and research institutions

COMPLEX SUPPLIES
• Design, equipment, furniture, fume hoods
• Connection to networks, IS for data management (LIMS)
• Users training

SUPPORT ACTIVITIES
• Measuring procedures
• Metrological verification, calibration, testing
• Preparation of accreditation documents

SELECTED REFERENCES
• ČEZ, Dukovany&Temelin NPPs – chemical, radiochemical, metrological, environment radiation monitoring laboratories
• Institute of Molecular Genetics of Academy of Sciences
• Czech Technical University
• National Radiation Protection Institute (SÚRO)
• PET Centre in Nuclear Research Institute Řež – general technology supplier of 2011 year project
INDUSTRIAL AUTOMATION

DESIGN, MANUFACTURING, INSTALLATION AND SERVICE

- Assembly, inspection and production automatons and semi-automatons
- Camera measuring and testing automatons
- Production line transfer-systems
- Operated assembly workstations
- Complete intelligent production lines
- Collection, evaluation and visualization of data
- Measuring systems for characterization of RA waste
- Lead shielding, special racks and trolleys, collimators

TECHNOLOGY

- Top assembly technology components, tires and control systems by BOSCH REXROTH, SIEMENS, SICK, FESTO
- 3D mechanical design with the use of DSS SolidWorks and CATIA
- Electrical design in E-Plan system
- Control software for PLC SIEMENS (Simatic), BOSCH and MITSUBISHI
OTHER ACTIVITIES OF ENVINET a.s.

- Design and supply of technologies for PET (Positron emission tomography) centres for the research, development and production of radiopharmaceuticals.

- Equipment for medical and research institutions, educational centres, conference and information rooms, multimedia lecture halls, etc.

- Personal dosimetry service: official measurements of ionizing radiation and neutron doses; personal dosimeters dose evaluation for medical and research workplaces.

- Services in the field of metrology verifications, calibrations, control and testing of instruments.

- Specialized services: outsourcing, licensing support, staff training, operating and maintenance procedures, start-up testing.
RADIOLOGICAL CHARACTERIZATION SYSTEM

- Stationary system with HPGe detector and a conveyer for 25 drums for the automatic RW measurement
- 2 mobile systems with HPGe detector and a turntable IsoCart + MCA DigiDart device for the automatic RW measurement
- SW RADRUS, RAOS, GamaVision, Isotopic 32
- Generating reports for the State control and accounting system of RW&RM
LITHUANIA, IGNALINA NPP

NPP UNDER DECOMMISSIONING

Free Release Measurement Facility

- Stationary and mobile systems for RW free release measurement which determines the possibility of waste release into the environment
  - 3x HPGe detectors ORTEC
  - 3x MCA analyzers DSpec j.r. ORTEC
  - IsoCart + MCA DigiDart
  - SW EDRUS, RAOS, GamaVision, Isotopic 32

Procurement of tools and equipment for radiological characterization

- Supply and installation of the measuring and laboratory equipment
- Development of radiochemical methods & procedures
- Creation of the system database for archiving and presentation of the measured data
- Training of radiochemical laboratory personnel
THE UKRAINIAN NPPs

RIVNE NPP
- Development, manufacture and delivery of stationary and mobile systems for the solid radioactive waste characterization

Detector positioning system

Turntable and weighing system

ZAPOROZHYE NPP
- Equipment for solid radioactive waste treatment – chemical and radiological monitoring of the incinerator emissions
DESIGN, MANUFACTURE AND SUPPLY OF THE SYSTEM FOR THE NOBLE GASES ACTIVITY MEASUREMENT IN THE VENTILATION STACK

- HPGe detector ORTEC, X-COOLER II
- MCA analyzer DSpec j.r. ORTEC
- SW GEM, GamaVision, SPIS

- Supply of laboratory equipment for RW characterization
- Long-term contract for the technical support of radioactive waste management system
RADIOLOGICAL ANALYSES FOR PRE-DECOMMISSIONING RADIOLOGICAL CHARACTERIZATION OF SHUT DOWN NUCLEAR FACILITIES

- Characterization of the research reactors, hot cells and laboratories
- Destructive and non-destructive analyses, sampling
- Radiation situation monitoring
- RadScan 800 gamma camera – gamma-ray imaging
  - In-situ gamma spectrometric measurement
  - Surface contamination measurement
WHAT ARE OUR PREVIOUS ACTIVITIES IN THE RUSSIAN FEDERATION:

- European Commission tenders participation (EuropeAid, TACIS …)
- MosNPO RADON radioactive waste characterization project completed in 2009
- Scintillation detectors supplies to Dubna
- Number of projects realized for the Russian-type NPPs: the Czech Republic, Slovakia, Bulgaria, Lithuania, Armenia, the Ukraine
- Recent negotiation with Russian company about representation of ENVINET’s measuring systems in the Russian market
OUR OFFER FOR NEW NUCLEAR UNITS - II

WHAT IS OUR POTENTIAL:

- Comprehensive radiation monitoring and radioactive waste characterization systems
- Turn-key laboratory systems with all technologies (chemical, radiochemical, radiometrical, dosimetric, metrological, environment radiation monitoring …)
- Chemical and radiochemical measurement in main circuits, auxiliary components and outside of the NPP
- Customized information systems and SW for all areas of NPP`s operation and management

WHAT WE BUILD ON:

- Long-term experience, special knowledge and expertize in NPP`s operational processes, chemical and radiation monitoring, RW characterization
- Engineering and manufacturing back-ground
- Wide experience with international projects (incl. Russian- and English-speaking markets)
- Stable financial conditions and good banking rating.
CONTACT

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Thank you for your attention!