

5th Newsletter

JULY 2023

Demonstration of an advanced technique for eliminating coal mine wastewater (brines) combined with resource recovery

Site visit by students from the Silesian University of Technology, Poland

Students from the Silesian University of Technology (SUT), Poland, have visited the site as part of their university course: "Recovery of water and other raw materials from waste water", part unit: "Circular Economy" course offered by the Faculty of Energy and Environmental Engineering of the Silesian University of Technology. The students were introduced to the environmental issues related to coal mining waste water discharge and the opportunities that the LIFE Brine-Mining project offers in implementing the principles of circular economy. They received a short training on operation of the unit available at the site.



Tour of the students in the pilot system evaporator unit



Dr. Krzysztof Mitko, Assistant Professor in the Silesian University of Technology, describing the pilot system performance to the students

Coordinating Beneficiary



GREECE



NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA)

Associated Beneficiaries



POLAND



Silesian University of Technology

SILESIA UNIVERSITY OF TECHNOLOGY



POLSKA GRUPA GÓRNICZA

POLSKA GRUPA GÓRNICZA S.A. (PGG)



Research Institute

GŁÓWNY INTYTUT GÓRNICZWA (GIG)



THE NETHERLANDS



LENNTECH



SEALEAU B.V.



TITAN SALT B.V.



TITAN PROJECTS



GREECE



NEVIS - NOVEL ENVIRONMENTAL SOLUTIONS S.A.



THERMOSSOL STEAMBOILERS S.A.

Site visit by students from the Silesian University of Technology, Poland



The students of SUT in the steam generator of the evaporator unit



The SUT students in the containerized membrane technologies: the nanofiltration, the electrodialysis, and the reverse osmosis



Dr. Krzysztof Mitko presenting the nanofiltration unit to the students

LIFE Brine-Mining Participation in VerdeTec 2023 exhibition in Greece



NTUA participated in VerdeTec 2023 exhibition, which took place in Athens, Greece, from 17th to 19th March, 2023. VerdeTec is an international annual exhibition on environmental technologies attracting visitors from all sectors of the economy. NTUA team showcased the Brine-Mining innovative solution for extracting valuable resources from brine waste and answered enquiries of all those who visited the NTUA stand and showed interest to the project. The NTUA stand was visited by Mr Elias Demian, the project monitoring expert, who also contributed to fruitful discussions in the framework of dedicated events organized within the exhibition.



Prof. Loizidou presenting the Brine-Mining project during Verde Tec exhibition

LIFE Brine-Mining Participation in VerdeTec 2023 exhibition in Greece



Prof. Loizidou, Senior Scientific Expert & Leader of the Brine-Mining project (Unit of Environmental Science and Technology, NTUA) presented the Brine-Mining project in the context of a dedicated event to the "Development of innovative systems at NTUA with an emphasis on sustainable waste management and the circular economy" held during Verde Tec exhibition.

In the context of the exhibition, a LIFE session was also organized, in which a wide range of topics were presented in the fields of nature, environment, circular economy, climate change and transition to clean energy supported by the LIFE Programme. Nevertheless, the important role of the Programme in these objectives and the ambitions of the European Green Deal were emphasized.



Members of the Unit of Environmental Science and Technology (UEST) from NTUA in the Unit's Kiosk, in VerdeTec exhibition



The LIFE Brine-Mining monitoring expert, Mr Elias Demian, together with Dr. Konstantinos Moustakas and Dr. Maria Kyriazi, both members of the Brine-Mining project, in the VerdeTec exhibition



Members of the UEST, National Technical University of Athens, attending the LIFE session organized in the context of the 5th VerdeTec exhibition

Site visit by the JSW Group – the biggest coal mining company in Europe



On March 28th, 2023, representatives from the Jastrzębska Spółka Węglowa SA (JSW), one of the largest coal mining companies in Europe, with a production of approximately 12 million tonnes of coal every year, visited the LIFE Brine-Mining site. The site visit was organized by the Brine-Mining Polish partners (PGG S.A., SUT, GIG). During the visit, the pilot system was presented to the representatives of the JSW Group, as well as to representatives from PGG S.A., the owner of the Ziemowit mine, in which the pilot system is located. A brief discussion was held, among the project partners and the site visitors, about the pilot system operation performance and the contribution of the project implementation to the environmental protection of the rivers and the lakes of the mine area.



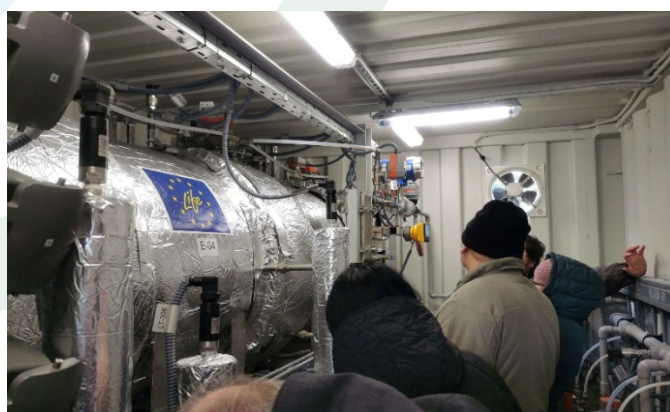
Dr. Krzysztof Mitko presented the containerized precipitation reactors to the JSW Group and PGG S.A. representatives, during their tour at the site



Dr. Krzysztof Mitko presented the pilot system membrane technologies during the tour



Dr. Krzysztof Mitko (2nd from the right) and Mr Bogdan Wawro from PGG (2nd from the left) with the site visitors during the visit



The tour participants in the pilot system evaporation unit

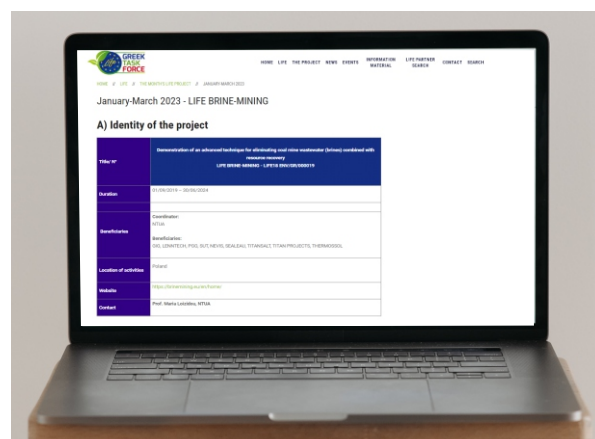


Commemorative photo from the visit of the JSW Group and PGG S.A. representatives at the Brine-Mining site. Dr. Krzysztof Mitko (1st from the left) and Mr. Bogdan Wawro (3rd from the left) are members of the Brine-Mining consortium

Brine-Mining is the LIFE project of the quarter January to March 2023 for the LIFE Greek Task



LIFE Brine-Mining was chosen as the LIFE project for the quarter January to March 2023 by the LIFE Greek Task Force. The LIFE Greek Task Force aim is to regularly inform and assist prospective LIFE beneficiaries at national and local level for the LIFE projects, facilitate the exchange of experiences and good practices, and promote the use and the dissemination of results from the projects implemented within the framework of the LIFE Programme in Greece and Europe. Every quarter, the LIFE Greek Task Force chooses a LIFE project among several hundreds of projects under implementation acknowledging as offering significant contribution to LIFE Programme targets. Brine-Mining was chosen to be the LIFE project of the quarter January to March 2023. The objective of the project, the good practices and its results are demonstrated in the Task Force website and social media.



You can visit the LIFE Greek Task Force website to see the Brine-Mining information

Future Events



The Silesian University of Technology, which participates in the Brine-Mining consortium, will join the 15th Scientific Conference for "Membranes and Membrane Processes in Environmental Protection", MEMPEP 2023, in Poland, between 21st and 24th of June 2023. SUT will present the performance of the Electrodialysis and the Reverse Osmosis technologies for the treatment of coal mine wastewater with high salinity. Both technologies are part of the Brine-Mining pilot system, located in South Poland.



Silesian University of Technology

Future Events



The Central Mining Institute of Poland (GIG), the Silesian University of Technology (SUT), and the National Technical University of Athens (NTUA), who are all partners in the Brine-Mining project, have prepared a scientific work entitled: "The pressure of indirect mine wastewater discharge on the aquatic diversity and the ecological status of the watercourses in Southern Poland". This work, which is expected to be published within the next months, presents the laboratory results from an aquatic area in Poland receiving indirectly coal mine wastewater.

The results indicated high pressure on the ecological status of the area, as well as elevated salinity, which hinders the use of water for drinking, municipal, agricultural, and industrial use. It was conducted with the participation of hydrobiologists from the University of Silesia, Poland, who have researched the effect of coal mine effluents on the fauna of the aquatic area. The mine effluents pressure was clearly visible on the density and the diversity of aquatic invertebrates.



Benthic macroinvertebrates

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