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*Electron gallery:*  
D.I.Sereda, T.Yu.Snegiryova

**Address:**

E.O. Paton Electric Welding Institute,  
International Association «Welding»,  
11, Bozhenko str., 03680, Kyiv, Ukraine  
Tel.: (38044) 287 67 57, 200 82 77  
Fax: (38044) 528 04 86, 200 82 77  
E-mail: journal@paton.kiev.ua  
http://www.nas.gov.ua/pwj

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## UNIQUE TECHNOLOGY DEVELOPED BY UKRAINIAN SCIENTISTS FOR ELIMINATION OF UNDERWATER ACCIDENTS IN OIL AND GAS PIPELINES

On the 3rd of December 2010 the E.O. Paton Electric Welding Institute of the NAS of Ukraine presented a revolutionary development made by the Ukrainian scientists: technology and facilities for prevention of disasters, such as that occurred in April 2010 in the Gulf of Mexico. The presentation was attended by representatives of the scientific community from a number of institutes of the NAS of Ukraine, the Chamber of Industry and Commerce of Ukraine, associates of embassies, and mass media. Representatives from the Administration of the President of Ukraine, ministries, agencies, L.K. Kadenyuk – pilot-cosmonaut of Ukraine, as well as representatives from oil-producing companies «Chevron», «Conoco Phillips», «Exxon Mobil», «Royal Dutch-Shell» and «British Petroleum» were also invited.

The presentation was opened by Prof. B.E. Paton. He evaluated the disaster that took place near the U.S. coast as the most large-scale one in the history based on the consequences for the environment – over a million of barrels of oil in water, pollution of the coast of four American states, losses of the «British Petroleum» Company and U.S. Government worth of billions, and contamination with oil followed by contamination with chemicals used to eliminate oil.

The oil and gas production technologies have been improved during the last thirty years. However, the methods for controlling the accident consequences have remained unchanged. Therefore, the tragedy in the Gulf of Mexico may recur in other countries as well. At the same time, people will not stop extracting hydrocarbons, as the demand for them will grow by 15–20 %, according to forecasts for the next ten years.

The disaster forced the world leading countries to take the unprecedented measures aimed at developing new approaches to prevent accidents in production of hydrocarbons in offshore areas. Leaders of the G-20 countries gave special consideration to this issue at the summit in Toronto, which was reflected in the statement of this summit. The European countries having territorial waters decided to revise the rules for companies involved in oil and gas production in their shelves. Reaction of the Russian Government to the accident in the Gulf of Mexico did not take long to appear either. It repeated in many ways approaches of the American Side. One month after the accident in the Gulf of Mexico the Russian President charged the Government with working out of the «Protection of Russian Seas from Oil Contamination» Law, which had to regulate obligations and responsibilities of the producing companies in case of oil contamination of the Russian shelf.

In Ukraine, the oil and gas deposits in the Black Sea shelf have been exploited since the Soviet times, and now it is planned to explore new deposits. Moreover, there are huge deposits of noxious and explosive hydrogen sulfide gas in the Black Sea at a depth of more than 50 m. If a high pressure pipe fails at the bottom, it would cause an irreversible damage to the coats. N.Ya. Azarov, the Prime Minister of Ukraine, noted in this connection that «...after the catastrophe in the Gulf of Mexico, I have a question of the price. If such an accident had occurred in the Crimea, we would have lost not only the Peninsular, but also the entire Black Sea coats, starting from the border with Moldova and ending with the Taman. We have to think over this price very seriously».

The accident at the Deepwater Horizon forced the Caspian states to look in a new way at their plans to increase the volumes of extraction of hydrocarbons from the Caspian Sea deposits and their transportation to external markets by using tanker fleets.

Turkey's Energy Minister Taner Yildiz pointed to the necessity to take the urgent measures to protect the Black Sea from catastrophes and accidents related to extraction and transportation of hydrocarbons. Turkish authorities are considering different tools to minimise threats of such events.