EUROPEAN GREEN CONFERENCE

NUMERICAL MODELING OF THE RISK OIL PLATFORMS

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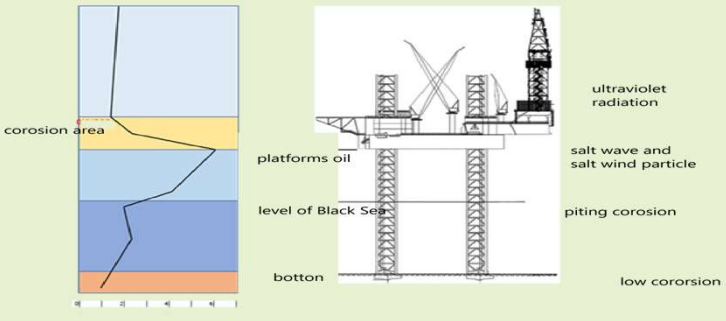
It is a fact that accidents that occur in the offshore area and that involve drilling and production installations, fixed or mobile, have happened and, unfortunately, still happen.
For a long time, offshore oil installations have been subject to EU legislative acts, applicable within the limits of territorial waters, i.e. 12 nautical miles from the baselines of the shore.
However, major shortcomings have been found in terms of legislative regulations in the event of a major accident beyond this limit, an event that could have a huge negative impact on human and material resources but also on the environment.
In 2013, the European Commission developed a much more comprehensive law on oil installations, which would target prevention, intervention and financial liability.
This directive was also implemented in Romania (due to the fact that our country has fluid hydrocarbon deposits in the Black Sea area and has also authorized operators to carry out exploitation, extraction and abandonment operations of these fossil resources. Law 165, which was promulgated in 2016, transposed into Romanian legislation Directive 2013/30, drafted by the European Parliament in 2013.
This paper presenting a risk assement programs to offshore platforms security to the environment and water protection

Oil platforms corrosion

Jacket wind protection damages

Corosion of the pile of platforms



Corrosion of Black Sea paltforms

In our studies on the metallic elements of the Black Sea platforms, I can state that the factors affecting the corrosion rate are the following:
a. Relative humidity leads to an increase in the corrosion rate of up to 60%.
b. The external temperature of the Black Sea leads to an increase in corrosion in the splash zone, because a high temperature also increases the humidity and therefore the corrosiveness of the seawater. There is also a process of salt deposition on the structural elements, which causes the corrosion rate to increase.
c. The wind ensures the dispersion of salt water particles and the impact of metal elements with these constituent elements of seawater, the corrosion rate being affected by the wind speed.
d. The metal structures used in the Black Sea are with low carbon content (below 20%) and with Mn, Ni, Cr, Mo, Al, V, Ti, Nb content to ensure very good mechanical resistance without diminishing the plasticity and toughness characteristics (Rm>490 MPa, Rc>355 MPa).