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МАТЕРІАЛИ V ВСЕУКРАЇНСЬКОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ СТУДЕНТІВ, АСПІРАНТІВ, ВИКЛАДАЧІВ ТА СПІВРОБІТНИКІВ

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features and benefits that come along with implementing a well-designed document management system can impact every part of our university, and ignoring them in today's education climate is nothing short of irresponsibility.

ASSESSMENT OF SURFACE CRACK STRENGTH FOR STORAGE OF LIQUEFIED NATURAL GAS

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The main element of any tank is its housing. The housing of the tank isolates work environment,being subjected to its chemical exposure, it sees mechanical and thermal loads as well. Therefore, the reliability of the tank depends on the reliability of its case. The main characteristic of the reliability of housing is its strength. Loss of tank strength leads to its destruction, the consequence may be large economic losses, environmental pollution and damage to human life.

There are many factors, which help to analyze fracture mechanics. But in this work we used one of them. This method gives all information about crack problems.

Calculation of the strength of the tank should be done for all conditions arising during operation of the tank including external factors and stress. Loss of strength is often associated with fracture of structural elements or deformation. The root cause of them is the origin and development of cracks and creep in the body of structures. The reason of fatigue cracks is metal, which is determined by many factors.

To assess the impact of cracks on the tanks the calculation of ground storage tanks of liquefied gas without and with semi-elliptical surface cracks has been made. The calculation was done by the ANSYS Student software system. According to the rules and methods of strength of vessels and apparatus under pressure calculation was performed for three pressure kinds: working- 1.6 MPa; calculating - 1.8 MPa; hydrotesting - 2.3 MPa.

As a result of calculation, the comparative analysis of the stress-strain state of the reservoir with and without cracks had been fulfiled. We received distributions of equivalent stresses, stress intensity factors at the crack tips, movement and strength factors. We also created stress intensity factors to be depended on the crack front.

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