Problems of metrological support of methods for determining the corrosion rate of offshore platforms with insufficient source data

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Offshore Platforms

Examples of platform elements in corrosion environment

Table 1. Student distribution with a given value of reliability γ

Number of measurements n-1	Reliability γ			
	P=68.3%	P=95%	P=99%	P=99.73%
(1)	(1.8)	(12.7)	(64)	(235)
2	1.32	4.70	9.9	19.2
3	1.20	3.18	5.8	9.2
4	1.15	2.78	4.6	6.6
5	1.11	2.57	4.0	5.5
6	1.09	2.45	3.7	4.9
7	1.08	2.37	3.5	4.5
8	1.07	2.31	3.4	4.3
9	1.06	2.26	3.2	4.1
...	...	...	...	...
100 200	1.00 1.00	1.98 1.97	2.6 2.6	3.1 3.0
Предел	1.00	1.96	2.58	3.0

Table 2. The residual wall thickness of the columns of the surface of the support block of the offshore stationary platform according to the results of ultrasonic thickness measurement

Measure-ment number	Measurement result x_i,mm	Arithmetic mean value x_{av}, mm	Deviation of the measured thickness from the arithmetic mean	Dispersion of a linear combination of measurement error, б
1	18.7	18.75	0.125	0.2437
2	19.1		0.275	
3	18.9		0.075	
4	18.8		0.025	
5	18.7		0.125	
6	18.8		0.025	
7	18.1		0.725	
8	18.9		0.075	

- Thus, a technique is proposed in the article that makes it possible to determine the nominal wall thickness of an element of the offshore platform in the absence of data on their initial thickness. And on the basis of the data obtained, calculate the residual life of the platform elements according to the corrosion rate.

Thank you for your attention!

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