عنوان مقاله:

Assessment of Bearing Capacity of Steel Tubular Piles by PDA Test

محل انتشار:

ششمین کنفرانس بین المللی پژوهش های کاربردی در علوم و مهندسی (سال: 1401)

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نویسندگان:

.Maryam Abbasi, - *Faculty of civil, Geotechnical Engineering, Payam Noor University, Shiraz, Iran*

Afshin shafigh - *Faculty of Civil, Geotechnical Engineering, Shahid Chamran University, Ahvaz,Iran*

خلاصه مقاله:

Piles as one of the slender elements of structures are predominantly utilized to transfer the diverse structural loads (including axial, lateral and bearing loads) from the low-capacity soil layers to the strengthener one. The loads are typically transferred to soil through two distinct mechanisms: a) by transforming the loads to the end of each pile located on the high-resistant layers, and b) using the friction force between the lengthwise surface of the piles and the soil layers. In onshore and offshore areas owing to several construction limitations, such as high-level groundwater, artesian pressure, lacking of high-strength soil layers, and the possibility of liquefaction phenomenon, utilizing steel tubular piles are frequently considered as one of the most appropriate methods. In order to determination of piles' bearing capacity, static as well as dynamic test methods are overwhelmingly utilized, but nonetheless, in the coastal areas with a large number of piles, static load test is not immensely popular because of the economic aspect of views. Subsequently, in this paper, this research has focused on the dynamic test results for particular condition, in which there are significant numbers of steel tubular piles in a coastal area. The PDA (pile dynamic analyzer) dynamic test results are acquired from ۱۵ steel piles located in the southern part of Iran, nearby the Persian Gulf where a considerable number of refineries have been constructed by Pars Oil and Gas Company in the coastline. The soil layers are predominantly categorizedin the silty sand branch, and the piles are pounded under the impact of diesel hammer in accordance with ASTM-D۴۹۴۵ standard and also analyzed via CAPWAP (case pile wave analysis program) signal compliance to determine the optimal load capacity .

کلمات کلیدی:

Steel piles, Bearing Capacity, Dynamic test, PDA, CAPWAP, Pars Oil and Gas company