



The Institution of Engineers, Malaysia

Bangunan Ingenieur, Lot 60/62, Jalan 52/4 Peti Surat 223
46720 Petaling Jaya, Selangor Darul Ehsan



TALK ON Engineering Applications of Seismic Refraction and Resistivity Techniques (Organized by Geotechnical Engineering Technical Division IEM)

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| Date : | 15 May 2009 (Friday) |
| Time : | 5.30 pm -7.00 pm (Refreshment will be served at 5.00 pm.) |
| Venue : | IEM Auditorium, 3rd Floor, Wisma IEM, Petaling Jaya |
| Speaker : | Mr Ng Chak Ngoon |

**BEM APPROVED
CPD HOURS: 2
REF NO:IEM09/HQ/139/T**

Synopsis of Talk

Geophysical survey methods have become increasingly important in engineering site investigation in recent years because of continuous improvement in techniques and instruments. In particular, essential analytical techniques previously limited to mainframe computers are now possible with the immense power of the personal computer. Consequently, engineers are now discovering the advantages of engineering geophysics in terms of reliability, cost and speed. The expanding role of engineering geophysics is also reflected by increased coverage given to it in the latest (1999) edition of BS 5930: Code of Practice on Site Investigation; from the mere three pages in the preceding edition it is now expanded to sixteen pages. In Malaysia as elsewhere, seismic refraction is the most popular geophysical technique in engineering. It is often used to map subsurface bedrock surfaces over large project areas for design of cut and fill. A less common application is the determination of the probable maximum lengths of pile to be driven. The same technique has been less successful in limestone areas. While it works satisfactorily in some areas, the technique was ineffective where the limestone surface was irregular and deviates too far from theoretical bases of the technique. There is also increasing demand for cross-hole, down-hole and up-hole seismic technique to determine S-wave velocities from which the shear modulus is obtained. A recent P-wave application has been used to determine the lengths of piles in abandoned projects being revived. Vertical resistivity profiling has been used to determine variation of ground conductivity with depth, most often for the design of lighting conductor systems. With the development of the 2D and 3D resistivity surveys, the technique has been found to be effective in mapping subsurface geology especially in differentiating between clay and sandy materials. It has also been used to determine the water table, the limits of seawater intrusion, groundwater seepage zones and pipe leakages. The main emphasis of this talk is on the understanding of the underlying concepts and methodology of each technique essential for its effective application.

Biodata of Speaker

The speaker, Mr. Ng Chak Ngoon, in over 30 years as an engineering geologist, has participated in the site investigations for major projects like the Peninsular Gas Utilisation Project II, Kuala Lumpur International Airport (KLIA), the North South Highway and the Malaysia-Singapore Second Crossing. His interest in the application of geology to engineering, especially in residual soils, has led to the publication of several papers on the topic and the development of the soil coring technique which allows for the recovery of samples containing both soil and strong rock. His familiarity with seismic refraction and electrical resistivity in engineering site investigations stems from his role in the technical development of these techniques within his company. He is currently the President of MSIA, a member of the Institute of Geology Malaysia, a life member of the Geological Society of Malaysia and member of the European Association of Geoscientists and Engineers.

Engr. Yee Yew Weng, M.I.E.M, P Eng
Chairman
Geotechnical Engineering Technical Division

Announcement to note:

1. Talk is **STRICTLY** for IEM members only (walk in)
2. Limited seats available on a "first come first served" basis. (maximum 110 participants)
3. No telephone and/or fax reservation will be entertained.
4. Latecomers will not be allowed entrance, if the lecture hall is full.
5. Please bring along this flyer and membership card for confirmation of attendance (CPD purpose).

For IEM members, membership cards MUST be presented for identification purpose. Members who fail to show their membership card will be charged a fee of RM20.00.

FUNDS FOR IEM NEW BUILDING

Kindly be informed that IEM will be charging participants RM10.00 administrative fee to evening talks organized by IEM. The fee would be used for overhead costs, building maintenance expenses as well as to support the purchase of the new building.

Students are however exempted. Your understanding is greatly appreciated.

CPD HOURS CONFIRMATION

Name of Member:

M' ship No:

Signature:

Date :