



IGS Technical Note

Contact IGS

www.insitu.com.au

0407 INSITU (0407 467 488)

Fax 07 3358 4366

Contact Allan McConnell

allan@insitu.com.au

0417 748 669

Geotechnical Services

CPT & Piezocone

Dilatometer

Seismic Dilatometer

Vane Shear

Tee-Bar

Push-Sampling

Piezometer Installation

In Situ Permeability

Field Fleet ("the girls")

Esme – 10-20t all-terrain



Beryl – 15t 4 wheel drive



Eunice – 20t 6x4 bogey



Baby Jayne – 15t portable



A request to IGS (quoted below) from Professor Silvano Marchetti regarding his recently published paper: **Incorporating the Stress History Parameter K_D of DMT into the Liquefaction Correlations in Clean Uncemented Sands**

"I am glad to inform you that finally my ASCE paper on liquefaction has been published (June 2015)

[http://ascelibrary.org/doi/pdf/10.1061/\(ASCE\)GT.1943-5606.0001380](http://ascelibrary.org/doi/pdf/10.1061/(ASCE)GT.1943-5606.0001380)

Just a few points concerning this paper :

- Fig. 4 in this paper (the essence of the paper) provides estimates of the liquefaction resistance (CRR) based on both Q_{cn} (CPT) and K_D (DMT). The idea is that an estimate based at the same time on two parameters should be more accurate than based on just one parameter (just Q_{cn} or just K_D).
- This diagram might be spreading fast in the geotechnical community and consultants.
- Every scrupulous consultant, having a delicate potentially dangerous important job, **IF AWARE** of Fig. 4, will possibly (perhaps) include K_D (besides Q_{cn}) to get a CRR estimate from this diagram.

I think this paper could be of interest to many designers in your area, including NZ. Therefore, if you consider it of interest and appropriate, you could give the information in your next newsletter, if you will.

I think we (I) have been slow to recognize the strong similarity between liquefaction and settlements. In the settlement application we know well, today, that E_d cannot be used as such, but must be "leveraged" by the stress history index K_D , in order to get reasonable estimates of M . Similarly, what Fig. 4 says is that, for liquefaction, CRR predicted by CPT cannot be used as such, but needs to be leveraged by K_D ."

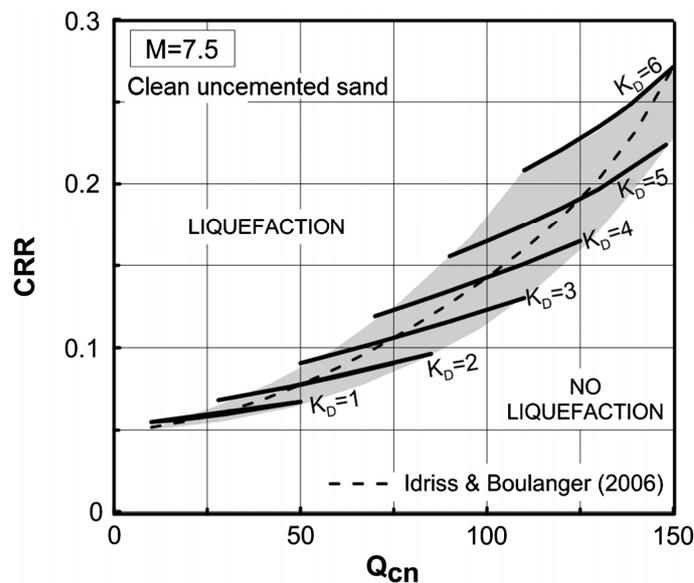


Fig 4 from the paper

Fig. 4. Chart for estimating CRR in clean sand based on Q_{cn} and K_D

Note that, as always, IGS does not hold itself out to be a consultant or professional adviser. It is up to the client to decide on the applicability of use of this information for their own purpose

reducing geotechnical uncertainty

Technical Note 15-09