



Asset Care Counts #22

October 2013

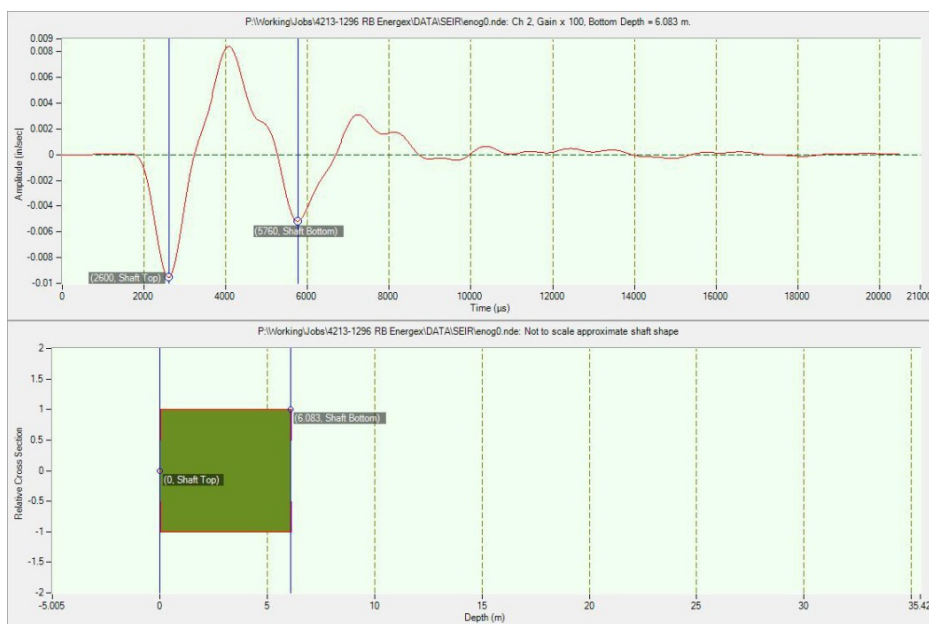
Analysis of Sound Impulses in Concrete

ALS has a broad range of techniques and capabilities to investigate concrete characteristics. This includes the quality of the finished product as well as the presence of defects and weaknesses. One technique is the use of sound impulses that are induced into structural elements and the analysis of the responses, wave forms and frequencies.

Recent projects have included assessing:

- Degree of tension in post-tensioned elements
- Cavities and voids below ground supported slabs
- Thickness of elements
- Length and defects in piled foundations
- Crack depth and orientation in structural elements

Deeper understanding and analysis of sound data is a means of gaining greater insight into the conditions within concrete elements. The range of techniques includes impact echo, sonic response, impact response, spectral analysis of surface waves and ultrasonic pulse velocity.



Example of the data processed by the SEIR software to determine the pile footing lengths.



ALS technician undertaking SEIR assessment.

ALS strives to continually evaluate the available diagnostic technologies to analyse for factors that impact concrete. In a recent project, Sonic Echo Impact Response (SEIR) technology was used to evaluate the condition and geometry of piled footings. This supported the structural evaluation and certification of additional loadings and applications for a critical communications facility. The ability to analyse the structure with greater data and certainty allowed for the optimisation of the structures use without having to implement disruptive and costly remedial works.

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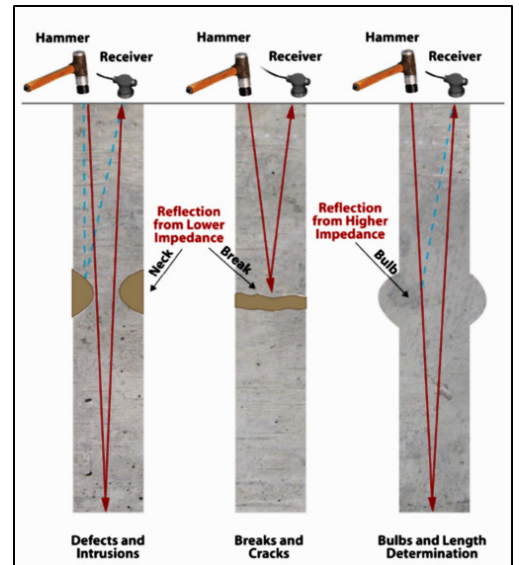
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Conceptual view SEIR analysis