



18 June 2008 AGS Electronic data Conference

8.50am- 9.00am Len Threadgold- opening
9.00am- 9.15am Quentin Leiper- Introduction

Session 1 - State of the Art

Chairman **Romain Arnould** - Fugro Engineering Services Limited 9.15 – 10.30

Data Data everywhere but not a drop to use

Paul Quinn – Keynetix Limited

The AGS data format provides the geotechnical industry with an invaluable tool for sharing SI data. So why, if so much AGS data is produced during a site investigation, is it not passed on to other users along the data journey?

This presentation investigates the barriers currently preventing AGS data from being supplied to those who need it, and the detrimental impact this has on the industry. We will present our findings into this major issue facing the industry and investigate how new technologies can help facilitate the distribution of data.

Finally the presentation will propose various ways forward that could remove the barriers currently preventing organizations from working together.

AGS Data from start to finish and beyond at the BGS

James Passmore - BGS

Founded in 1835, the British Geological Survey is the world's oldest national geological survey. The survey collects, stores, and collates data from a vast array of sources. This data is used to provide expert services and impartial advice in all areas of geoscience. The talk explores current usage of AGS data, in datasets, and services, with direct relevance to site investigation and geo-engineering; and shows how geotechnical information is used in the surveys digital geological models. Using examples, the talk attempts to demonstrate how providing your AGS data to BGS will help you now and in the future.

Electronic Interchange of Geotechnical and Geoenvironmental Data in Australia and New Zealand

Phil Wade and Simon Humphreys Datgel Pty Ltd

This paper outlines the current practice in Australia and New Zealand for the electronic interchange of Geotechnical and Geoenvironmental Data. A discussion is presented on various formats used for data interchange, including: AGS RTA Format, AGS NZGS Format, AGS Format (Standard), gINT Project files and GeoSciML. Comment is made on the uptake and feedback from users for the AGS RTA Format and AGS NZGS Format which were based upon the Draft AGS 3.2 Format and published in the last 2 years.

The state of data interchange in geotechnical practice in the US

Salvatore Caronna gINT Software

Unlike the UK, the common practice in the US is for geotechnical consultants to carry out the site investigation. Therefore, the need to transfer data between the SI contractor and the consultant is minor. The demand for data transfer is predominantly driven by government agencies. This paper surveys how this is being currently handled. It looks at the current methodologies with their advantages and disadvantages.



Client perspective on the application of the AGS format: theory and practice

David Patterson Highways Agency

Brief introduction to the adoption of the AGS Format for HA projects and the roles/responsibilities of Suppliers and Designers. Initial support to this format was to facilitate design of large and complex projects and the sharing of key data during the lifetime of the project.

Maturity of the Trunk Road Network and the developing role of the Agency as a Network Operator hence, development of asset management processes & systems + increasing proportion of schemes which are improvements to existing infrastructure and increased appreciation that this data is a valuable resource for the long term (i.e. not just the duration of a specific project). Benefits of utilising a well supported standardised format for the safe storage, sharing and utilisation of key data for the long term are increasingly important in meeting this business requirement.

Noting the outcomes from the CIRIA Project (CON 125 'Review of Electronic File Formats for the Exchange of Geotechnical Information') where the AGS Format was the only unified Standard adopted in Industry.

Session 2 - DIGGS

Chairman: *Peter Whittlestone* - ARUP 11.00 – 12.30

DIGGS organization overview

Marc Hoyt University of Florida

DIGGS is a coalition of government agencies, universities and industry partners whose focus is on the creation and maintenance of an international data transfer standard for transportation related data. The coalition came into existence through coordination from the US Federal Highway Administration sponsoring meetings and eventually forming the pooled fund study project. The initial base schema consists of geotechnical data including Borehole, soil testing, site information and more. The first SIG is extending the schema to include Geo-Environmental testing. More SIGs and expanded membership are in the works. This presentation will cover the history of the international DIGGS group and where it is currently heading.

DIGGS Technical overview – fitting it all together

Chris Power Mott McDonald

The DIGGS structure has been comprehensively designed to model the geotechnical and environmental requirements of the industry, reducing some of the weakness of the AGS3's fully hierarchical structure.

In this presentation the hierarchy of the structure will be presented using a number of theoretical case study examples.

DIGGS - benefits for UK PLC

Roger Chandler Keynetix Ltd

It is important that the benefits of any new format are clear and a business case can be made for it in terms of UK PLC. This presentation will cover the main advantages the data Format Committee have identified if DIGGS is implemented in the UK.



The Lego Guide to extending DIGGS

Chris Bray Keynetix Ltd

The DIGGS Markup Language (DIGGSML) is a GML compliant XML framework that can be customised to allow local implementations and variations to be specified.

This presentation explains the process and best practices of extending DIGGS and will cover how the AGS DICT, CODE, FILE and ABBR tables are handled in DIGGS.

AGS Data Version 4

Peter Whittlestone - ARUP

The development and future publication of DIGGS has implications for the current AGS Data Format. Notwithstanding the input that the AGS format has had to the development process both in terms time input by members of the AGS working group, and the AGS data dictionary forming a cornerstone to the DIGGS format, the current AGS format will be superseded by DIGGS.

This presentation will outline the future shape of the AGS format in a DIGGS universe, the approach to be adopted to basing the next version of AGS on the DIGGS model and the challenges and benefits this brings to the industry.

Session 3 – Current Practice

Chairman *Syd Pycroft - Buro Happold Ltd- 13.30 – 15.00*

Use of AGS data on Crossrail Ground Investigations

Mike Black Andrew Merritt Cross Rail, Geotechnical Consulting Group

The proposed Crossrail project includes an underground section beneath central and east London with extensive tunnels and numerous stations, shafts and portals to be constructed in varying ground conditions in a heavily developed urban area. Extensive ground investigations have been carried out during the development of this complex project, with further investigations ongoing. The investigations have been conducted by a number of contractors, and the results reported electronically in AGS format for use by various consultants. This presentation gives an outline of the Crossrail ground investigations and the handling of the large volumes of data generated in AGS format. The advantages of the AGS format and associated software for transferring and using the ground investigation data are presented, as well as some of the problems encountered and suggestions for possible improvements.

DIGGS and the Piling Industry - the dream!

Tony Suckling Stent

The piling industry is restricted in its ability to improve standards by the inconsistent way that it receives and transmits data. A large percentage of non-conformances can be traced back to a breakdown in the flow of information or from changes to the information. This presentation will describe where the piling industry would like to be and how DIGGS could help achieve this.

Some Examples of Using Electronic Data

Dick Gosling Soil Mechanics

Case histories where the data is produced in AGS format from the GI and used it in the assessment of ground conditions and engineering parameters in interpretative reports. A description of what a practising geotechnical engineer can do with it with specific reference to smaller jobs to rather than those with mountains of data where people perhaps more readily associate electronic manipulation



Operation of a Geotechnical Database Management System for New Doha International Airport.

Liam Duffy Bechtel

The construction of New Doha International Airport (NDIA) in the State of Qatar is being undertaken on land reclaimed from the sea. As part of this project, the associated Platform Reclamation and Armoured Revetment contract involved reclamation over an area of 22 to 23 km² and required a net fill quantity of around 63 million m³, of which over 80% was reclaimed from the sea, involved dredging of limestone rock and offshore sands from borrow areas. The Platform Reclamation and Armoured Revetment contract involved a large variety and quantity of geotechnical in situ testing, laboratory testing, and monitoring. All geotechnical data was managed, calculated, validated, screened, analysed and reported by one Geotechnical Database Management System (GDMS). This presentation describes how this system was developed for the project, how it operated and the benefits it brought about.

Florida's experience with XML and databases for piling

Marc Hoit Mike McVay Erica Hughes University of Florida

The Florida Department of Transportation (FDOT) has been engaged in moving to a paperless, web-based system for submitting and accessing Geotechnical records since early 2003. FDOT contracted with the Florida Bridge Software Institute at the University of Florida to develop an XML transfer schema and database that would allow applications to upload, download, review and modify information that are considered to be contractual records. This XML schema is being converted to the DIGGS format. FDOT has also developed and updated a number of applications that communicate to the database using the XML transfer. There are also security levels for controlling access to the data. Currently, the system is being used to upload historical PDF piling files as well as by the construction group for pile construction. Details on the process and applications as well as lessons learned will be covered in the presentation.

Remote data access and visualization - lessons from a remote site

Dave Richards Southampton University

The Geomechanics Research Group, University of Southampton are actively monitoring some 15+ remote sites. To facilitate rapid dissemination of site data via web based data visualization systems obtained remotely from these sites, the AGS file format has proved highly beneficial. Several projects have required additional instruments or time formats to be supported by the AGS format which was achieved in a timely and open manner. Details of current site monitoring projects where these changes have been implemented will be presented together with details of a typical remote project setup process.

Session 4 - Future

Chairman: **Jackie Bland – Geotechnics Limited 15.15 – 16.30**

North American experience of data stores

Loren Turner - Caltrans

The Consortium of Strong-Motion Observation Systems (COSMOS) and the Pacific Earthquake Engineering Research (PEER) Lifelines Program is retooling its Geotechnical Virtual Data Center (GVDC) for public release later this year. This web-based system allows users in the geotechnical community to easily exchange surface, subsurface, and substructure features and the associated geological, geotechnical, geoenvironmental, and geophysical data that are obtained from field observations and laboratory tests. The system implements DIGGS for data interchange between data providers, the GVDC, and end users, while integrating a host of open-source tools including PostgreSQL, PHP, Javascript, and GoogleMaps. Federal and state government agencies have been partnering on this project, including the United States Geological Survey (USGS), the California Department of Transportation (Caltrans), the California Geological Survey (CGS), and Pacific Gas & Electric (PG&E).



Report on JTC2

David Toll Durham University

JTC2 is a Joint Technical Committee of the International Society for Soil Mechanics and Geotechnical Engineering, International Association for Engineering Geology and the Environment and International Society for Rock Mechanics

The aim of this Joint Technical Committee is to oversee the development of an internationally agreed form of representation of geo-engineering data that can be used to store such data on the World Wide Web and transfer data between computer systems. The work is focussing on XML formats for representation of geo-engineering data.

Practical ways of using AGS Contamination data

Tim Ball Data Flex Solution

Geo-environmental projects often generate very large volumes of data, some principles for managing these data sets will be outlined with particular emphasis on combining geotechnical and chemical data into single coherent data set. Issues associated with data transfer, the use of multiple test laboratories and multiple test regimes will be discussed. Examples of analysis using combinations of chemical and geotechnical parameters will be presented.

Drivers for a national data transfer standard for the (geo-)environmental industry

Ian Farrar ESI

Whilst the geotechnical industry has perhaps led the way in the UK in developing the AGS standard, the (geo-)environmental industry has an equal if not greater need for national consistency in data transfer. As a result, the AGS standard has been widely adopted for the transfer of environmental data, particularly that associated with the contaminated land industry. However, being designed primarily from a geotechnical perspective, there were some issues with the way in which the AGS standard worked which potentially limited its wider acceptance in the UK (geo-)environmental industry. In 2004, ESI helped to convene a group of interested parties (including labs, the Environment Agency, software developers, consultants and large data users) to identify what the key requirements were for a national standard for (geo-)environmental data transfer. This talk outlines the issues raised by that group and discusses how these were to be addressed initially by AGS-E and now by DIGGS.

AGS education: the past, the present and the (potential) future

Chris Power Mott McDonald