

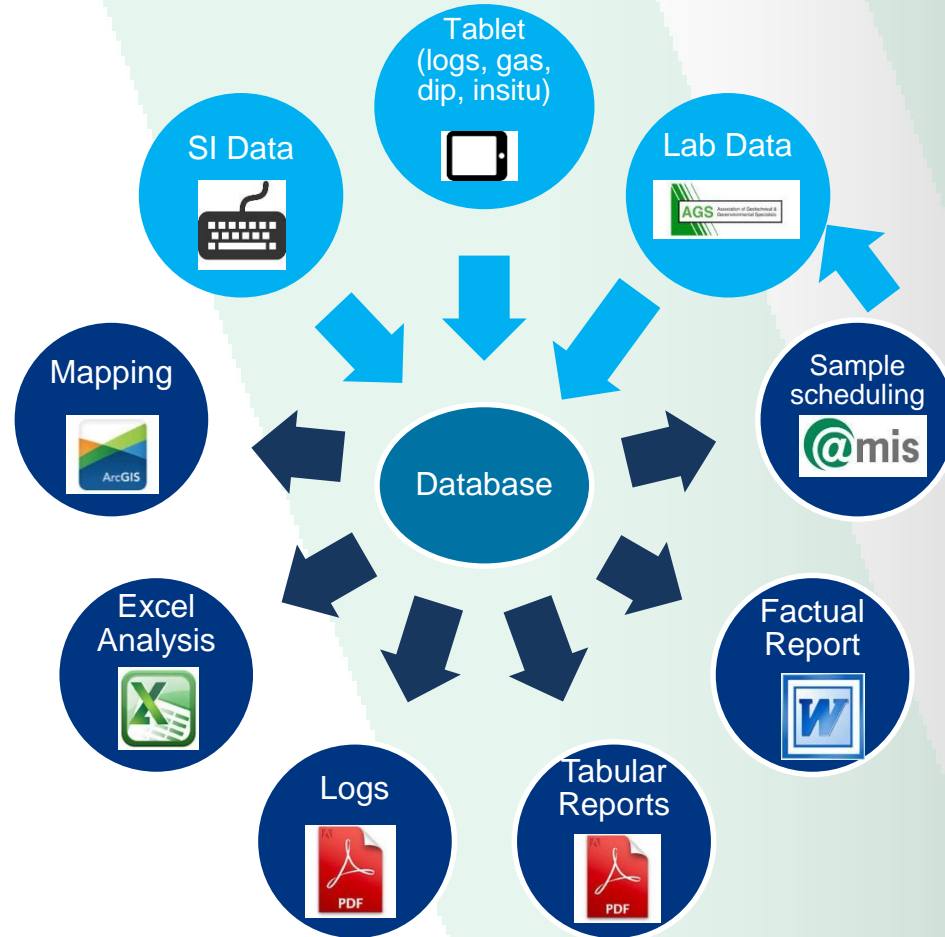
Digital Data Journey Refinement

Rae Watney, WSP

Digital Innovation Aims

- Achieve high quality data acquisition, management and manipulation
- The creation of a fully digital geo-environmental project lifecycle
- Creation of single digital solution to assist in the automation of 95% of all our data from the field through to reporting.
- To reduce data transcription errors
- To improve consistency in reporting (nationally) across regionally based teams

System Overview



Direct Scheduling

- Working with our lab to directly import sample details from our database
- Using barcode scanners on tablets to identify samples without writing out labels or CoC
- Direct port of laboratory results into our database for detailed analysis

Outputs

- Reporting Tools
 - QA/QC reports
 - Soil and water screening
 - Full laboratory data summaries
 - Gas reports
 - Generic and site specific
 - Factual Report tables
 - Excel Pivot Tables

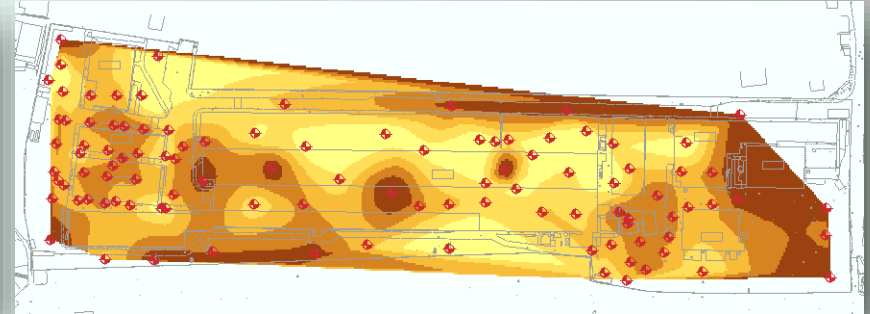
Outputs

- GIS tools
 - Using ArcMap
 - Exploratory hole locations
 - Contaminant concentrations
 - Spatial distributions and contours
 - Groundwater monitoring
 - Geological ground models
 - Instantaneous reporting linked back to database

GIS tools example

Chemistry: Maximum concentrations

Geology: Thickness of Made Ground



Rollout

- Initial outlay for bespoke app development for logging using flowfinity app, directly based on BS5930
- Rugged site tablets for field engineers
- Training sessions – one face to face session with practical demo, webinars and training sheets, and designated “superusers”

Results

- 15,200m of logged boreholes saving an estimated 150 man days of transcription time.
- 6150 monitoring events recorded, saving an estimated 60 man days.
- 5200 report output requests since its introduction, saving an estimated 540 man days.
- Significant positive change for QA/QC

Example: Petrol Retail Portfolio

On a recent major project we saved an estimated 107 man days as part of borehole decommissioning works covering 178 sites. In total, 976 wells (6,625m depth) were decommissioned over a period of six months using a combination of in-house and out-sourced field teams.

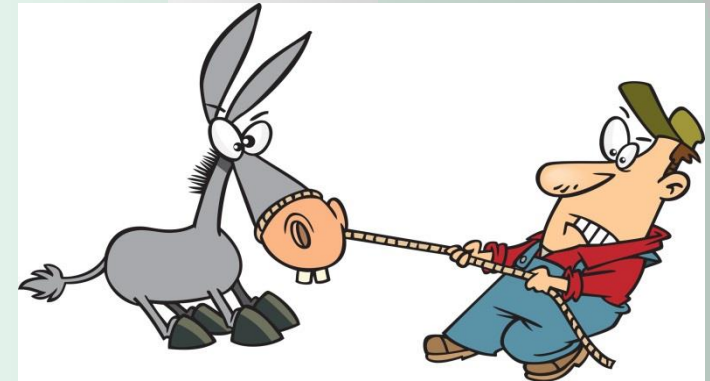
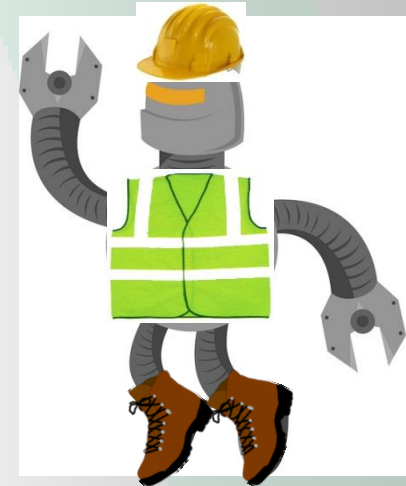
Table 1. Decommissioning Details

LOCATION ID	LOCATION TYPE	DEPTH TO WATER (M BGL)	DEPTH TO BASE (M BGL)	INTERNAL PIPEWORK DIAMETER (MM)	BACKFILL MATERIALS (M BGL)
BH3B/VW3 B	Monitoring Borehole	0.9	4.1	50	(0.0 - 0.2) Reinforced concrete (0.2 - 2.0) Concrete (2.0 - 4.1) Bentonite / cement slurry



Success?

- Are the tablets being used?
 - Automation of logging
 - Resistance to change?
 - Making systems intuitive – provision of help systems for infrequent users
 - Knowing limitations and possibilities of the system
 - Training for new employees
 - Commitment to change and embrace the system – how to make people want to change



Success?

- Improvement in Quality
 - Fewer data transcription errors
 - Automating data collection means less impetus to rigorously interrogate data “the report says...”
 - Challenge is to maintain integral curiosity for site engineers
 - The system provides so many ways to quickly assess a site – but it isn’t being utilised effectively (disconnect between users and managers)



Future changes

- Better integration with laboratories and subcontractors
- Improving flexibility
- Better training (and not just for tablet users)
- Capturing photos within the app and automating reports
- Inspiring curiosity
- Effective digital project management



Future changes

- Rollout in Sweden, and global vision over the coming year
- Site specific health and safety forms with dynamic risk assessments
- Phase 1 walkover plans with georeferencing

