

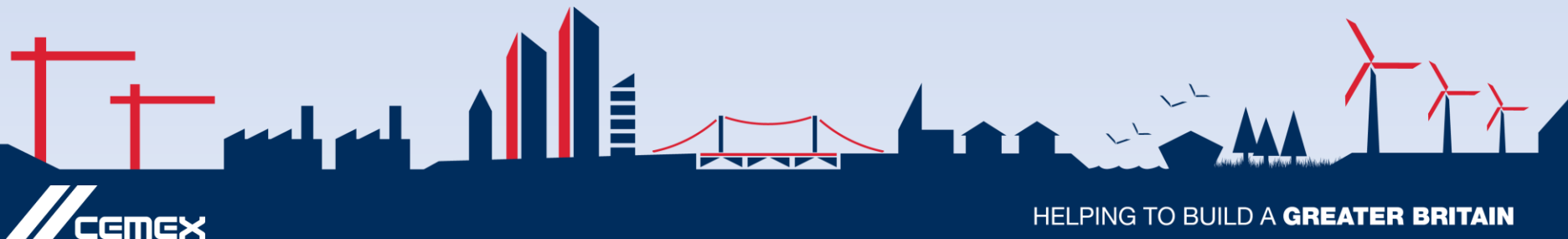
Closed Landfill Sites - Managing the Information Legacy

LANDSS Landfill Aftercare Forum
Birmingham 9th June 2016

Kevin Wilson

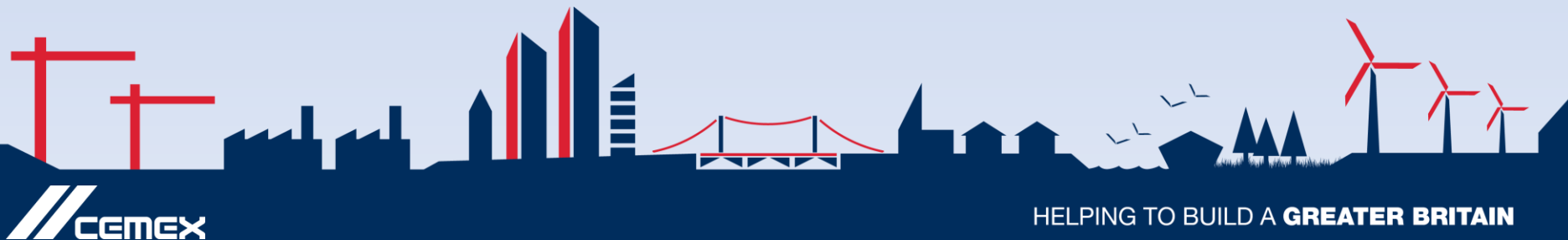
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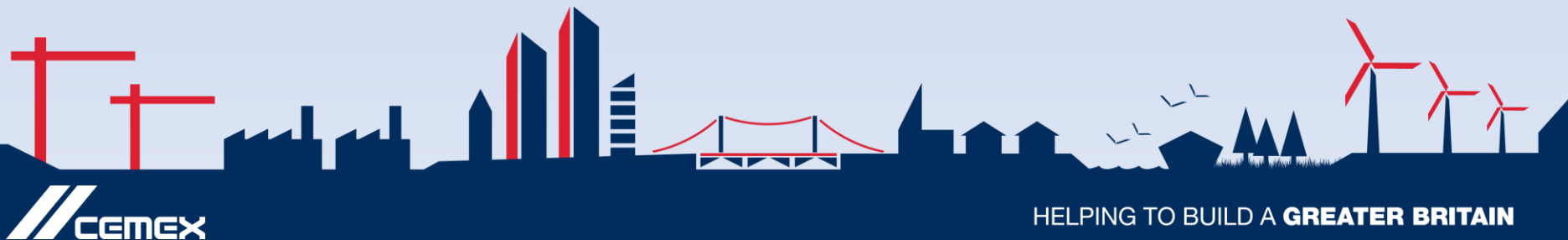


HELPING TO BUILD A **GREATER BRITAIN**

- Introduction
- The Closed Landfill Liability
- The Information Legacy
- Information Formats
- Management Considerations
- The CEMEX Approach
- Conclusions



- CEMEX entered the UK through acquisition of RMC Group in 2005
- CEMEX has operations in more than 50 countries
- CEMEX is the worlds leading ready-mixed concrete producers and suppliers of heavy building materials
- CEMEX acquired landfill liabilities in the UK through RMC



The Closed Landfill Liability

- The majority of landfills are closed
- Those with a Permit or with environmentally damaging impacts continue to require management
- Ongoing costs – need to minimise – now and future
- Management required until sites no longer represent a threat to the environment

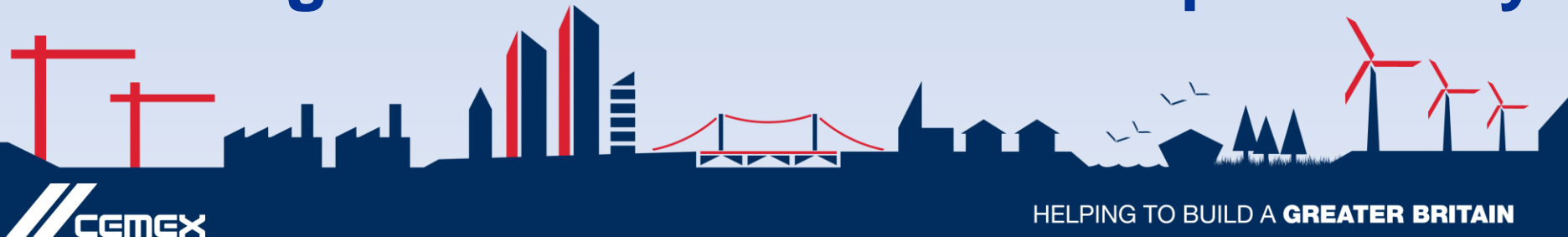


50 years?

100 Years?

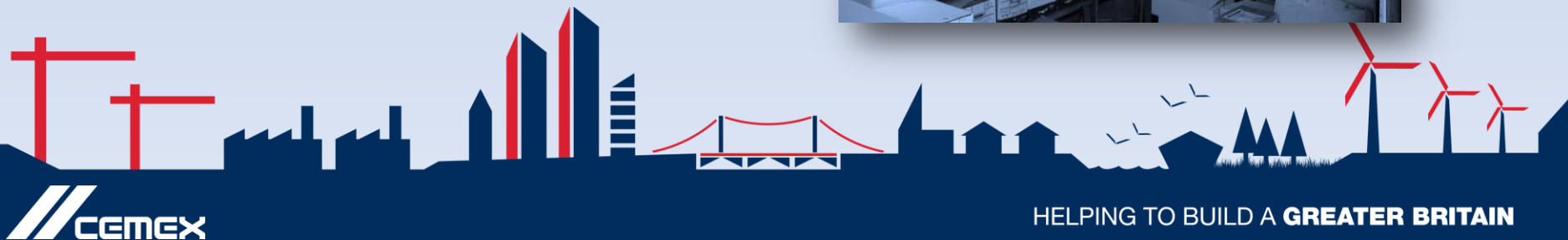
1,000 years?

Future generations inherit the responsibility



The Information Legacy – Key Questions

- How will future generations manage the sites?
Information (documents and data) will be required
[We cannot rely on word of mouth – Memories deteriorate and deceive]
- What information is required for the management of the sites in the future?
- Where do we find it?
- How do we organise it?
- How do we store it?
- How do we pass it on?



Information Management Considerations

■ We know

- Paper degrades
- Inks fade
- Paper documents vulnerable to damage and destruction
- Data on paper can be worthless

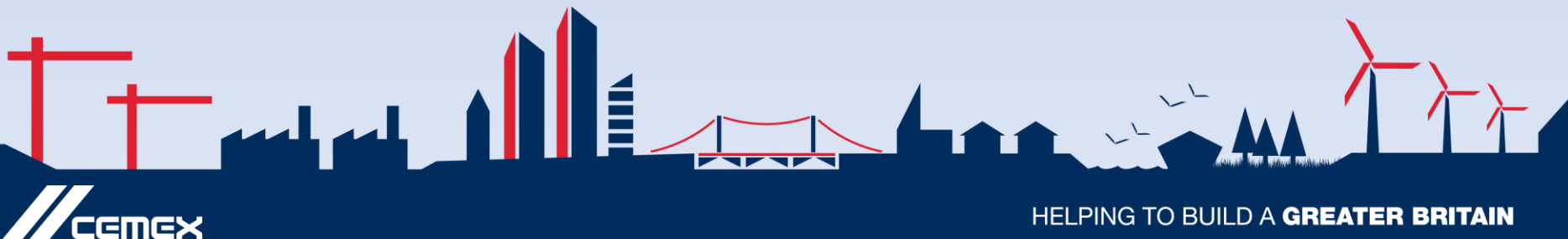
■ Conclusion is – We cannot rely on paper so it has to be electronic

BUT

■ Electronic information can be lost or destroyed

- even at the click of a button !
- Potentially more vulnerable than paper in short term

■ Information has to be protected and maintained

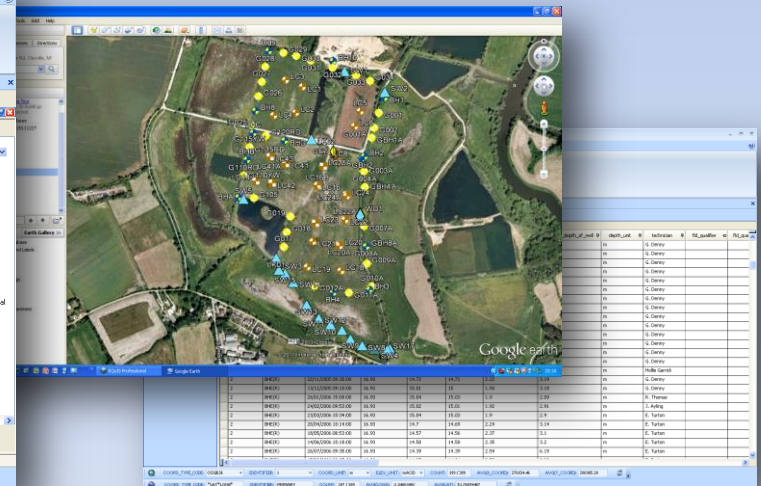
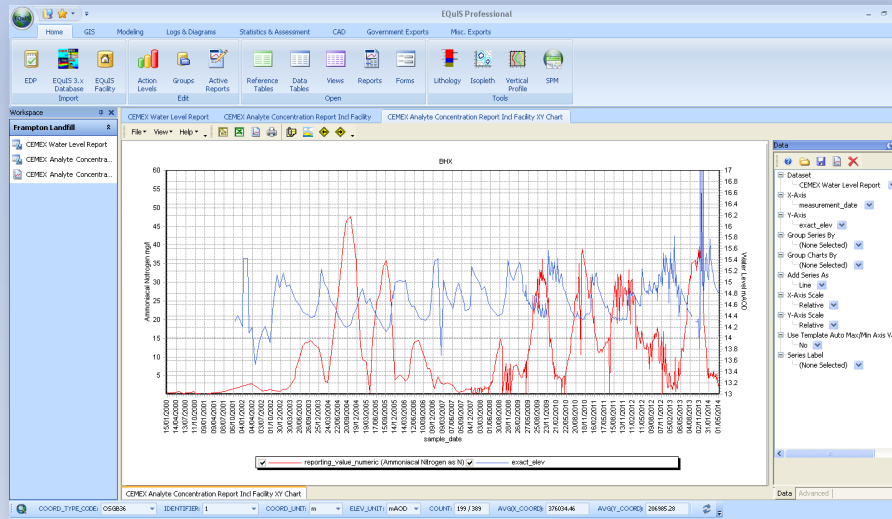


- **Data management software is available**
- **Document management systems are available – BUT**
 - Is there a comprehensive, manageable and cost effective software tool available? Documents only or monitoring data as well?
 - Where are the documents to be stored? Separate server from data? General folder structure?
 - How are the documents stored? BLOBs, Links?
 - How can all electronic data and documents be protected for generations?
 - There has to be a robust IT support function
- **No easy answer for the ‘typical’ liability holder !**



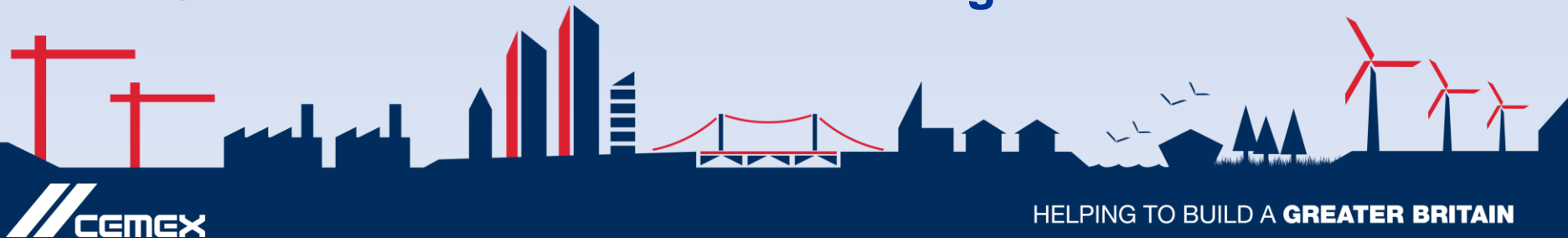
The CEMEX Philosophy and Approach

- **EQulS™ Database – Product from Earthsoft Inc.**
- **Data warehouse acquired by CEMEX for environmental data management**
- **All monitoring data have been stored along with a wide range of meta data – quality of data is important as well**
- **EQulS™ extended to include documents**



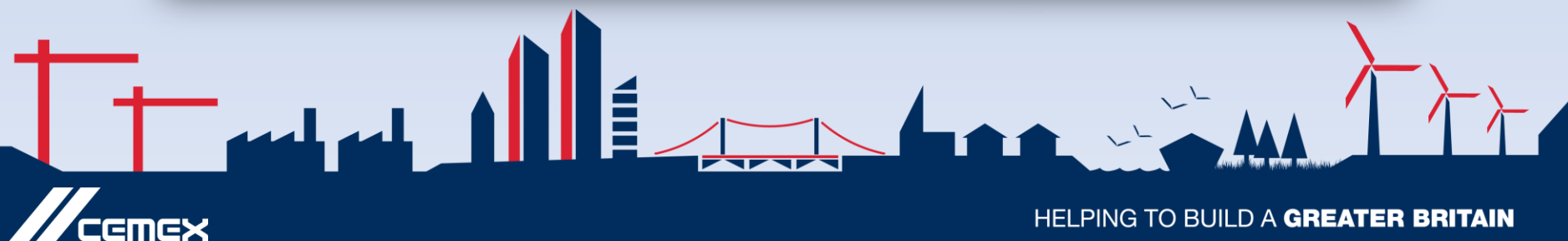
The Value of Data

- **Large amounts of money can be spent on data collection**
 - Office based planning
 - Field Services
 - Laboratory analysis
 - Data management and reporting/consultants
- **Poorly managed data are worthless data**
 - Paper based
 - Spreadsheets
 - Unprotected and/or simple databases
- **Data management converts the straight cost LIABILITY into an ASSET**
- **Good quality data can have a value orders of magnitude greater than the cost – BUT ONLY if managed well**
- **CEMEX has invested in Data Management**



CEMEX Data – Approximate Annual Totals

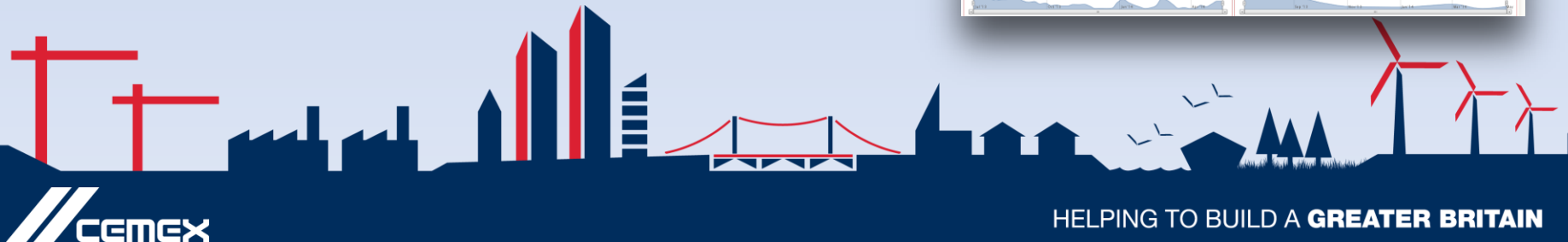
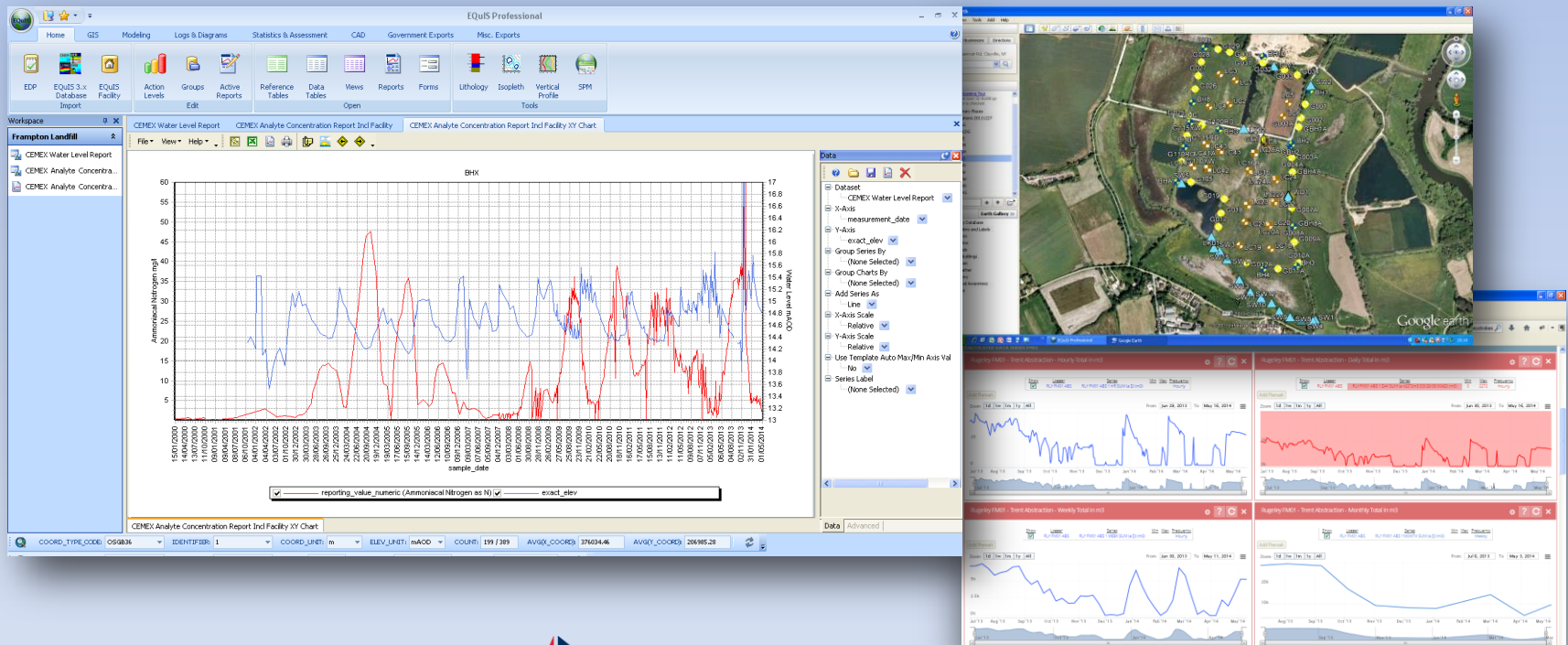
Data Type	Number of Records
Sites Monitored (all site types)	>300
Landfill sites with Permits	c.45
Locations (Active)	c. 4,500
Samples	c. 12,000
Analytical Results	c. 250,000
Water Level – Manual	c. 24,000
Gas	c. 250,000
Logger Data (flow, water level, Met)	c. 20,000,000



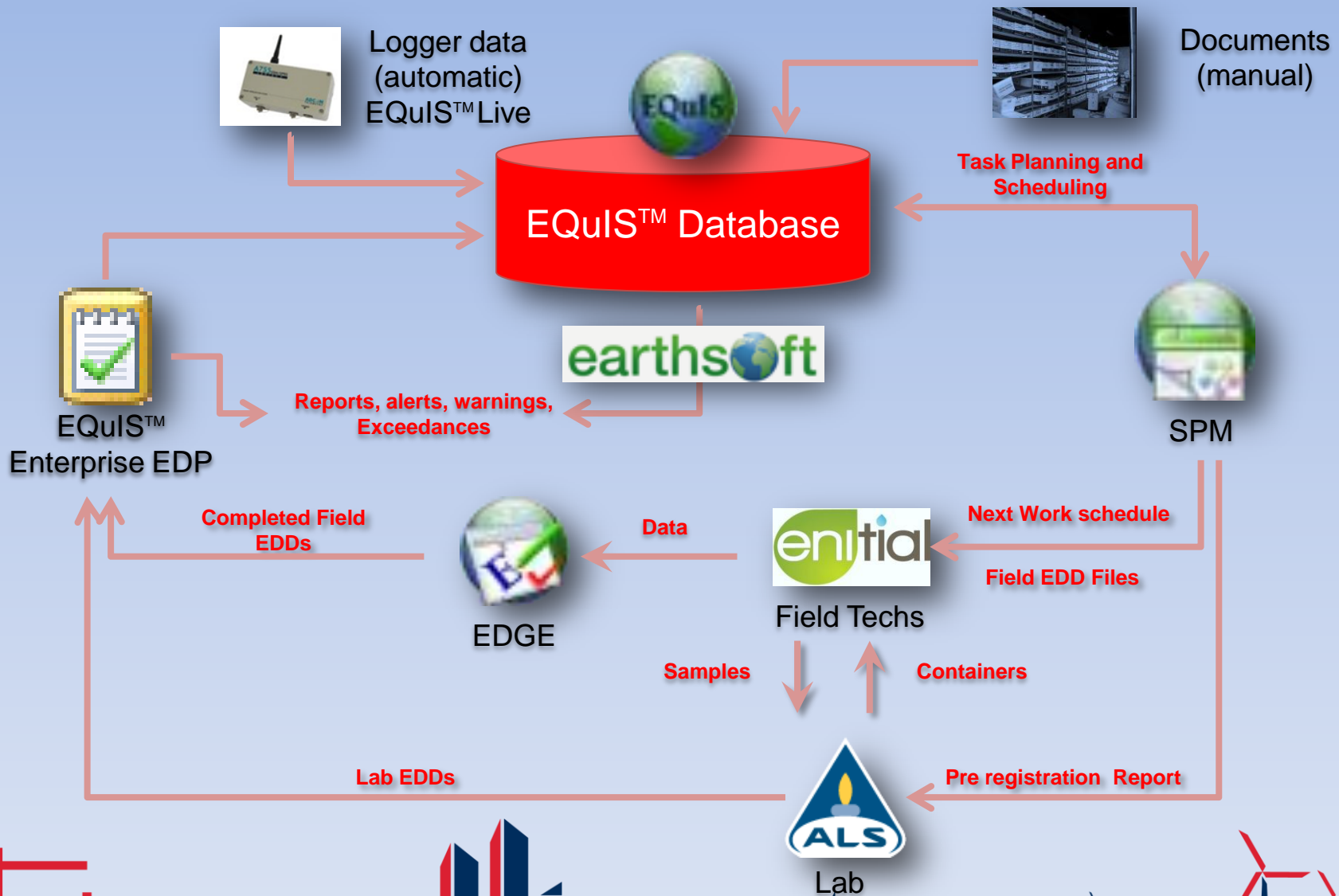
HELPING TO BUILD A **GREATER BRITAIN**

■ EQulS™ Database – EQulS™ Pro – EQulS™ Enterprise

- Database first acquired in 1999 – started use on 02/01/2000
- SQL Database
- Data Warehouse – but now with additional modules



EQulS™ Data and Information Flow



Flow Meters

- In Line, weir, ultrasonic etc.
- Meters/Loggers – Battery and/or Solar powered
- Used in remote locations

Level Sensors/Met

- Sensors Solar powered
- Logger solar powered

EQulS™ Live

- Auto synchronisation of data
- ‘Live’ display in Enterprise

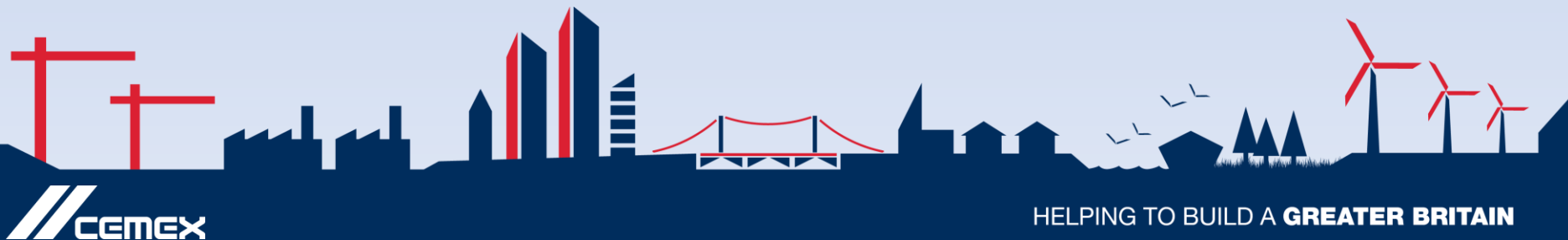
PLC Data

LTPs, Gas Flares etc.



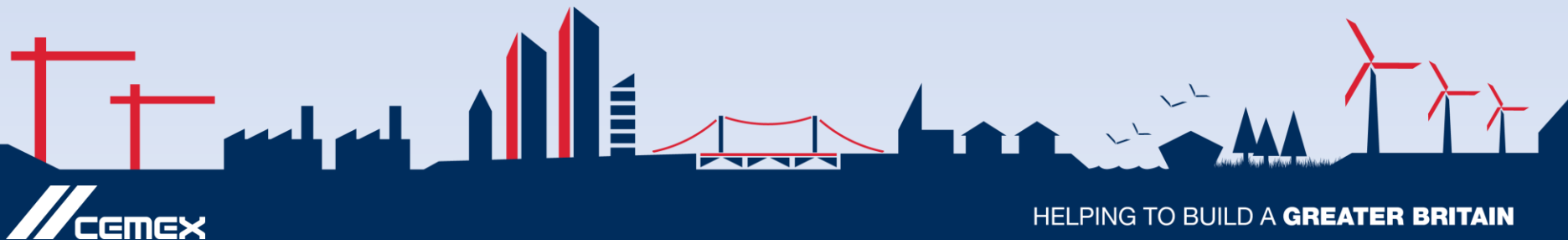
The CEMEX Philosophy and Approach

- Large volumes of data – need to automate
- Must be efficient – minimise cost and resources
- EQuIS™ functionality extended – BLOBs in the database – e.g. documents, photos etc. – All Information together in one place
- Downside
 - Documents consume large amounts of space
 - In time they will affect database performance
- Upside
 - Documents etc. are available and protected
 - Documents and data are stored together – efficient
 - Available to migrate to other solutions in the future
- Earthsoft are developing new document management functionality within EQuIS™



Summary and Conclusions

- Many closed landfill sites will require management for centuries and responsibility for those sites will pass to successive generations as a liability
- Information will be needed to manage the liability in an efficient and cost effective way
- Information management is essential - NOW
- Paper records are not the solution
- Electronic information management brings with it different challenges
- CEMEX has adopted the use of EQuIS™ for data and information management as a single repository
- The EQuIS™ solution is considered the best for CEMEX at the present time



THANK YOU

