Making Discover Live
Integrating Esdat with Discover

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GHD

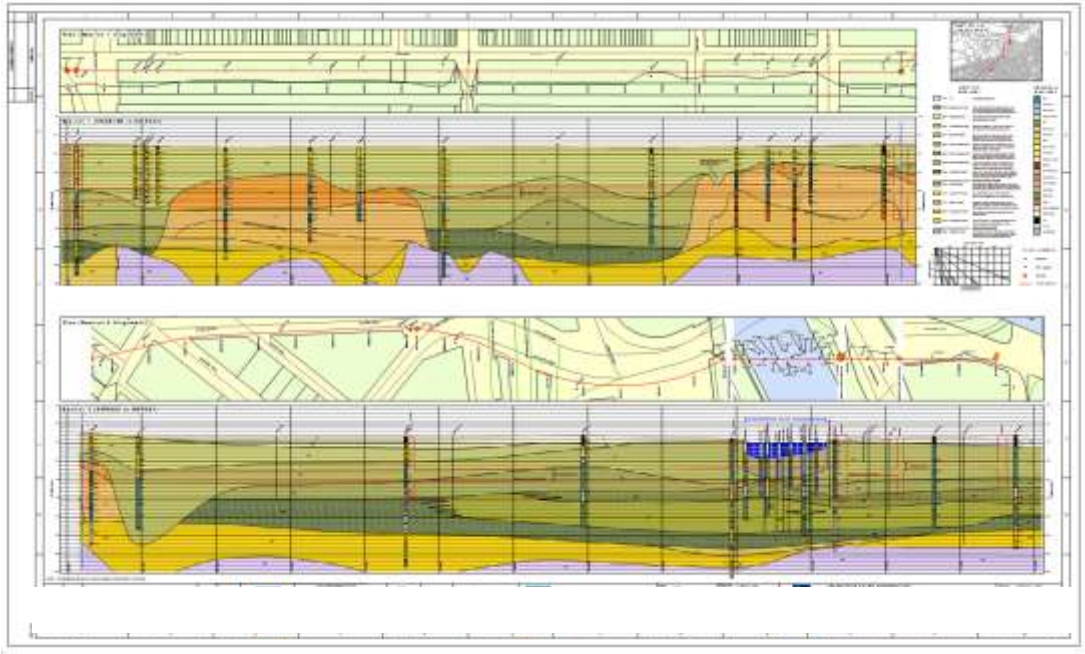
CLIENTS | PEOPLE | PERFORMANCE

Overview

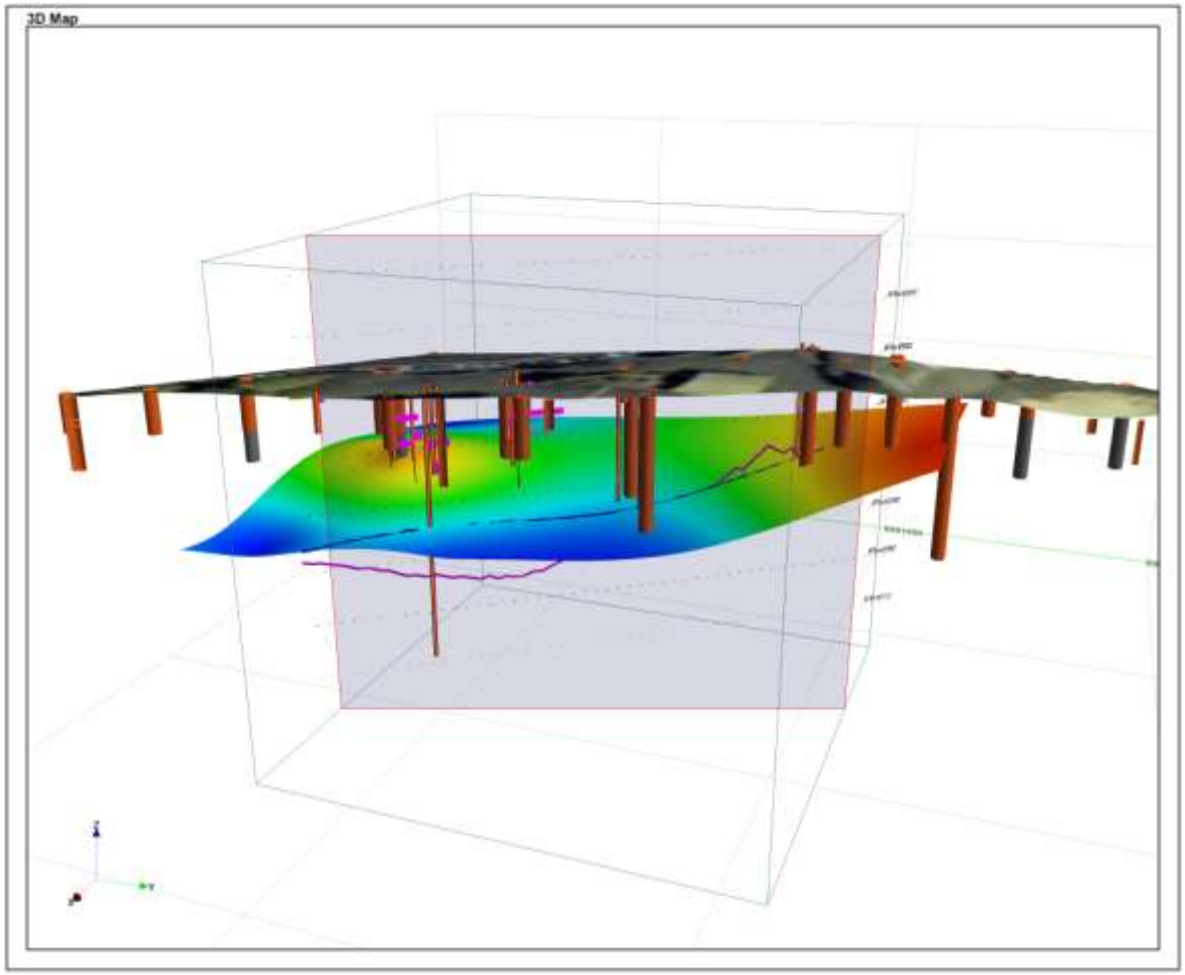
- GHD is an professional services consultancy – 6000+ staff and offices in Australia, Middle East, Asia & Americas.
- GIS used extensively within GHD with a GIS service group supporting internal & external clients.
- A significant presence in contaminated land, mining, geophysics, geotechnical and Hydrogeology disciplines – The hole diggers, gold diggers and mud movers.
- How do we optimise data collection and analysis and minimise data handling? One method presented

Display - Encom Discover

- A need to analyse and represent downhole information on a daily basis. Discover being a preferred tool
- Discover works with MapInfo tables & native formats
- Discover enables earth science data in 2d and 3d



Display - 3d

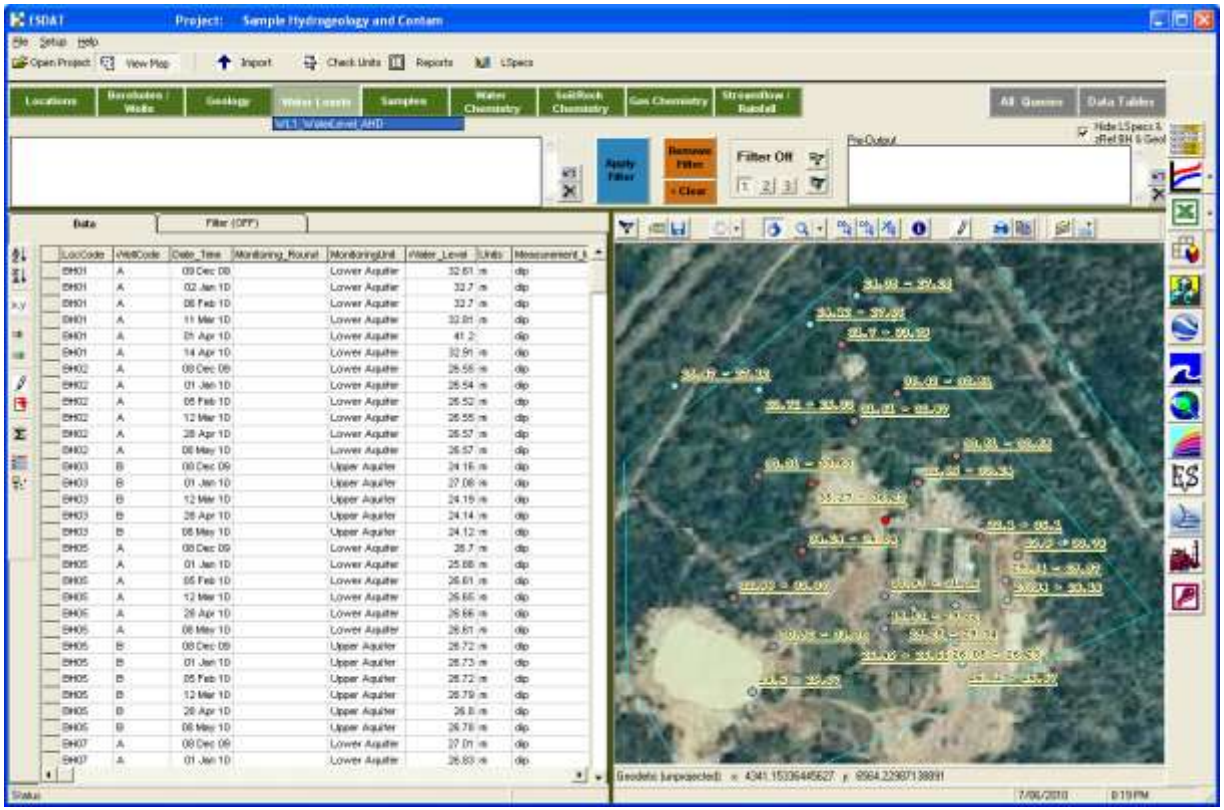


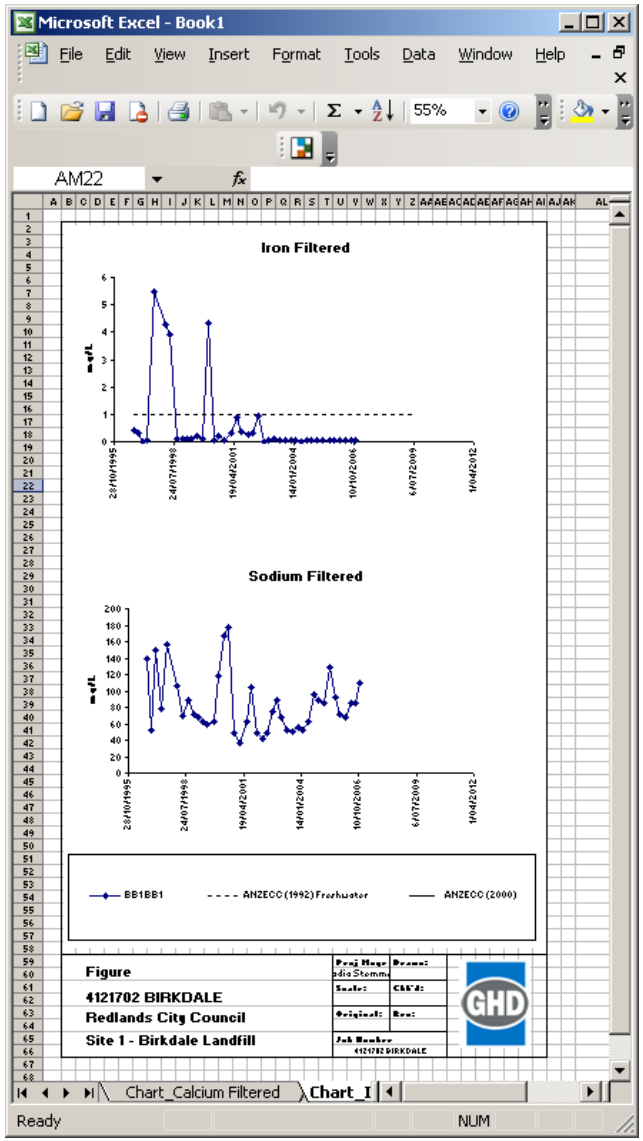
Storage - Data management

- Earth science data:
  - Complex relational database model
  - Live
  - Ongoing reporting requirements

- ESDAT is GHD's earth sciences database
  - Good Datamodel for earth sciences (lithology, hydrology, Geotechnical, Chemistry)
  - Flexible
  - Simple methods for capturing field data
  - Integrated outputs: Borelogs/ 2d Maps/ Reports/ QA/ Charting
  - However No sections or 3d analysis. Exports data to MI

ESDAT (www.esdat.com.au)





Field_ID	BH01_2-3	BH01_3-4	BH01_5-6	BH02_1.1-1
LocCode	BH01	BH01	BH01	BH02
Depth_Range	2-3	3-4	5-6	1.1-1.4
Date-Time	8 Jan 2004	8 Jan 2004	8 Jan 2004	8 Jan 2004
Description	Slight Petroleum Smell			

ChemName	Units	EQL	Dutch Invervention	USEPA PRG Indust Soil			
BTEX							
Benzene	mg/kg	0.001	1	1.2	0.002	0.002	0.073	<0.001
Ethylbenzene	mg/kg	0.001	50	100	100	<0.001	0.012	<0.001
Toluene	mg/kg	0.001	130	520	990	300	0.001	<0.001
Xylene (m & p)	mg/kg	0			<0.002	<0.002	0.006	
Xylene (o)	mg/kg	0.001			<0.001	<0.001	0.002	<0.001

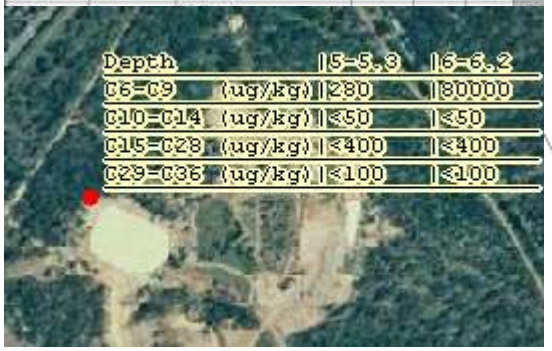
Field QC

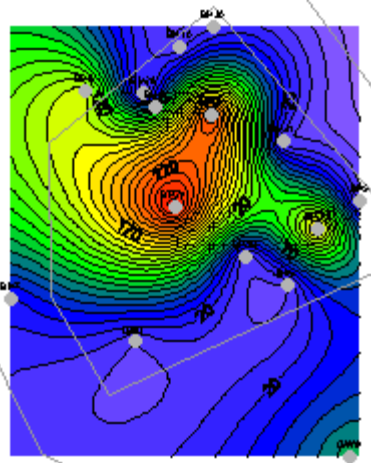
Duplicates (RPD)
Blanks
Etc..

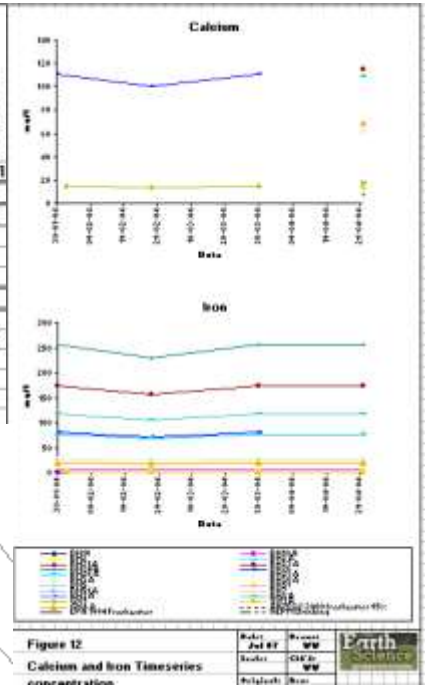
Lab QC

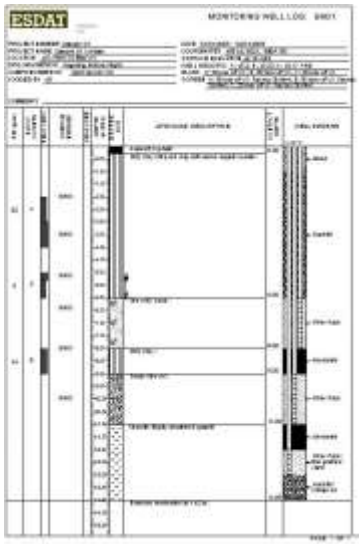
Holding times
Ionic Balance
Surrogates
etc..

			Arsenic	Arsenic (Filtered)	Calcium	Chromium	Chromium (Filtered)	Copper	Copper (Filtered)	Iron	Lead	Lead (Filtered)	Magnesium
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EQL			0.005	0.001	0.1	0.005	0.001	0.005	0.001	0.05	0.005	0.001	0.1
ANZECC 2000 freshwater 95%						**0.001**	**0.001**	**0.0014**	**0.0014**		**0.0034**	**0.0034**	
EPA 1994 Freshwater											0.001	0.001	
NEPM Drinking			0.007	0.007				2	2		0.01	0.01	
LocCode	**WellCode**	**Sampled_Date_Time**											
BH10		27-Feb-04	-	-	-	**0.0738**	**0.0225**	**0.0045**	**0.0036**	4.77	**0.0054**	**0.0054**	0.9
BH10	A	30-Jan-04	-	-	-	**0.002**	**0.025**	**0.005**	**0.004**	5.3	**0.006**	**0.006**	1
BH10	A	30-Mar-04	-	-	-	**0.002**	**0.025**	**0.005**	**0.004**	5.3	**0.006**	**0.006**	1
BH2	A	30-Jan-04	-	0.004	-	-	<0.001	-	<0.001	-	-	<0.001	-
BH2	A	27-Feb-04	-	0.0036	-	-	<0.0009	-	<0.0009	-	-	<0.0009	-
BH2	A	30-Mar-04	-	0.004	-	-							
BH21	A	30-Jan-04	<0.005	-	-	<0.							
BH21	A	27-Feb-04	<0.0045	-	-	<0.							
BH21	A	30-Mar-04	<0.005	-	-	<0.							
BH23	A	30-Jan-04	-	-	-	0.							
BH23	A	27-Feb-04	-	-	-	0.							
BH23	A	30-Mar-04	-	-	-	0.							
BH24	A	30-Jan-04	-	-	-	0.							







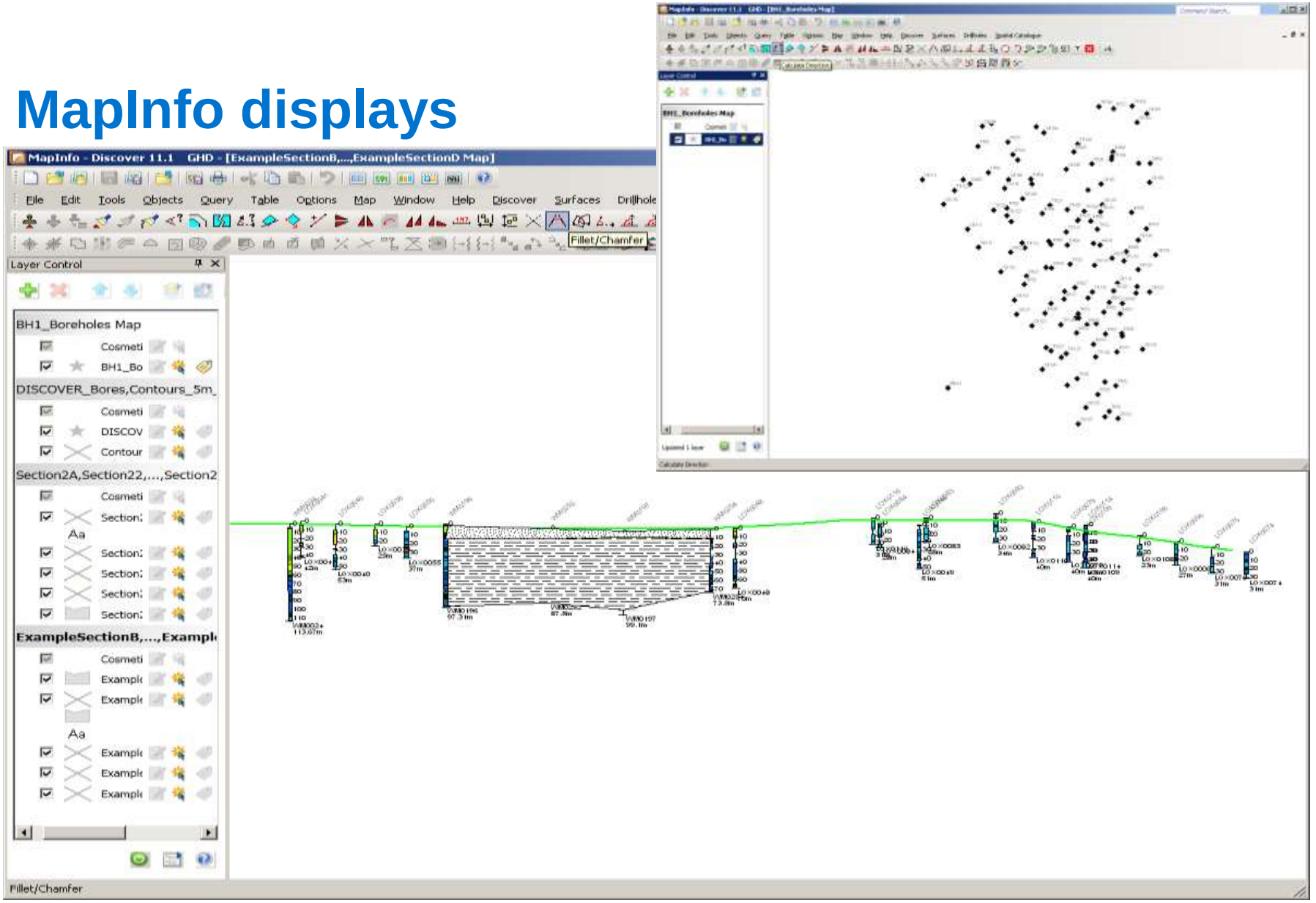


Solution: Make Discover Data Live

Utilise database queries rather than base tables via ODBC links

- Build queries in RDB to format data for Discover
  - *Bore Header: (X, Y) *2, Z, BoreID, Depth, angle, bearing*
  - *Downhole: BoreID & the same DepthFrom, DepthTo*
- Make Bore Header DBMS table mappable
- Open Data in MapInfo as Linked tables
- Create Discover Borehole Project
- Refresh live data from the DB as needed

MapInfo displays



Benefits

- Data is centrally managed – One point of truth.
- Live - minimal exports.
- Data corrections carry through work process rather than just at outputs.
- Data source usable for multiple applications.
- Power of relational databases for queries can be used.
- Esdat or other datamodels (eg state borehole databases) can be utilised.
  - 3d Eye candy.