

# DATABASE INTEGRATION & 2D/3D VISUALIZATION OF SITE INVESTIGATION DATA FOR ENHANCING CONCEPTUAL SITE MODELS (CSM)

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## 1 INTRODUCTION

Traditional data processing and management techniques fail to provide the data integrity, security, quality control and access to data sets necessary for development of an accurate Conceptual Site Model (CSM). A comprehensive data management solution and visual CSM development was completed for an Industrial Site in Sao Paulo, Brazil to provide an enhanced Site Investigation Evaluation and a more focused Site Remediation Strategy Evaluation.

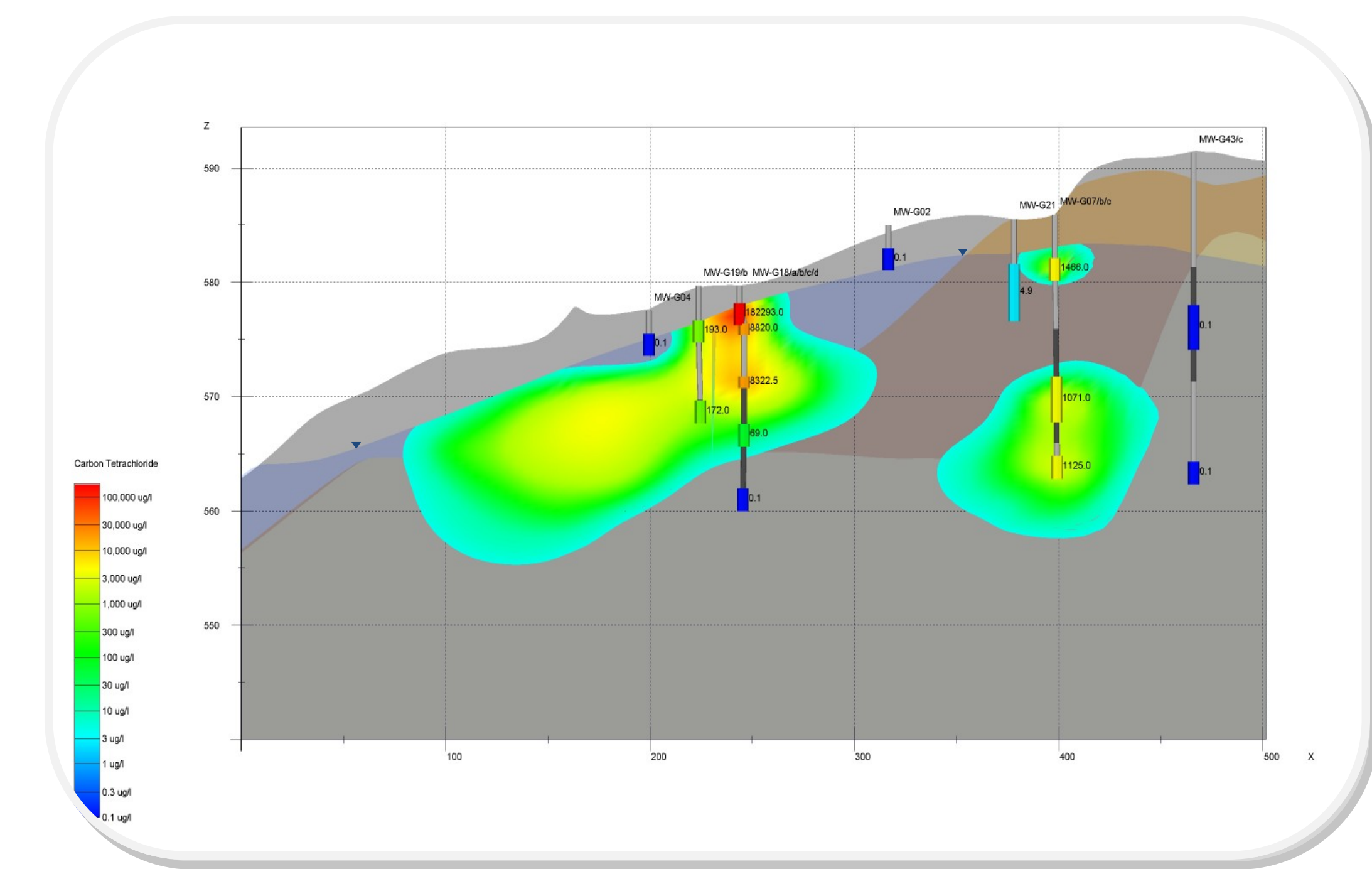
## 2 DATABASE/CSM DEVELOPMENT

The comprehensive data management solution was utilized to organize data collected over an eight year period into a relational database (EarthSoft's EQUIS). Data was migrated by manual entering and digital transfer that included over 45,000 records (location data, water levels, geologic information, well records, analytical data, etc.). Once the database design and data transfer were completed, data were queried and exported to Ctech's MVS for creation of a 3D geologic model and 2D/3D models of groundwater plumes which could be visualized in GIS.

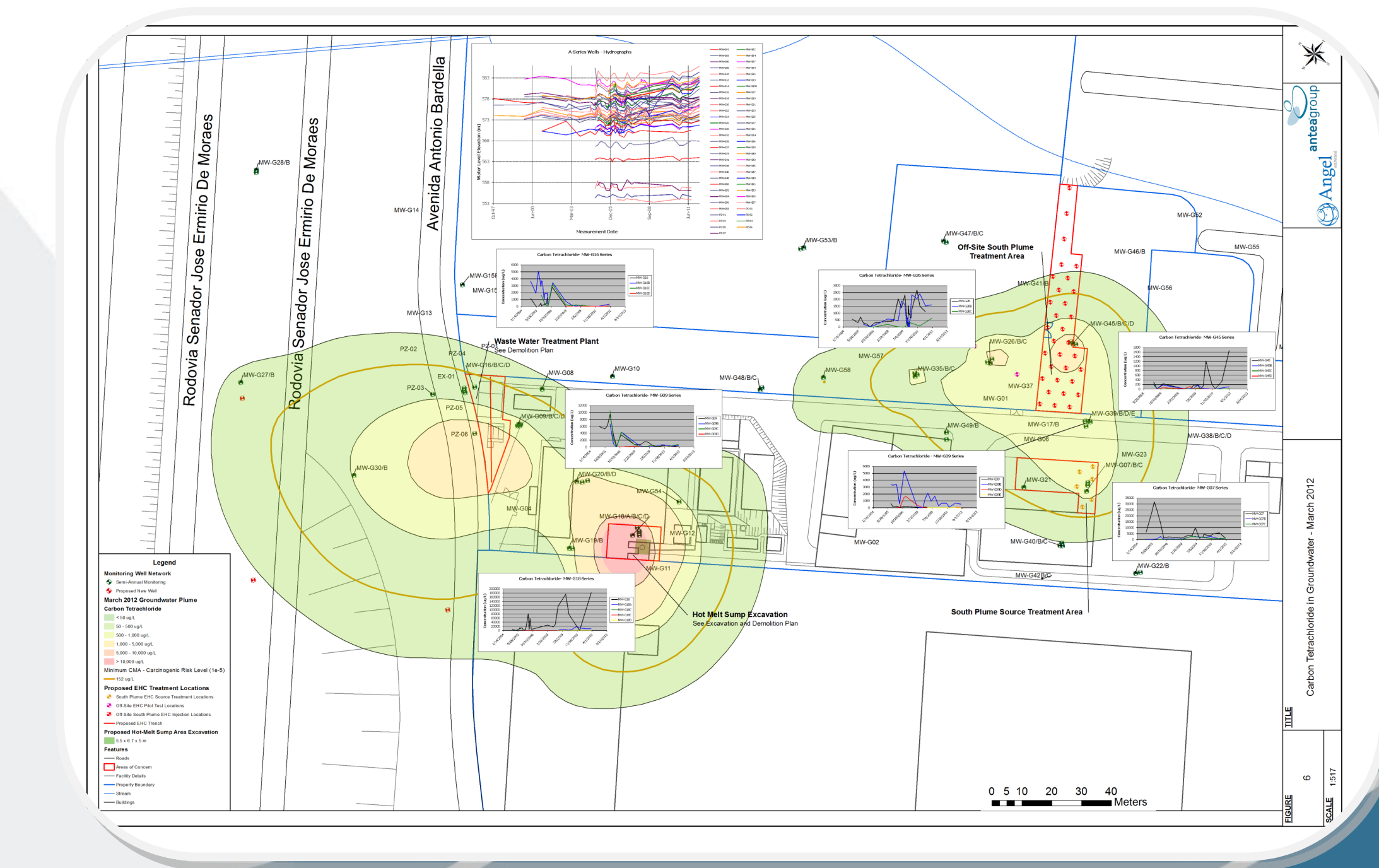
## 3 RESULTS AND CONCLUSIONS

Statistical groundwater trend analysis of primary contaminants, were completed for each well. This resulted in creation of a representative data set that could be used to statistically identify wells that could be removed from the monitoring network, could be abandoned and identified locations for additional investigation. In addition, the digital CSM was used to evaluate on-going remediation systems and design of additional remedial systems.

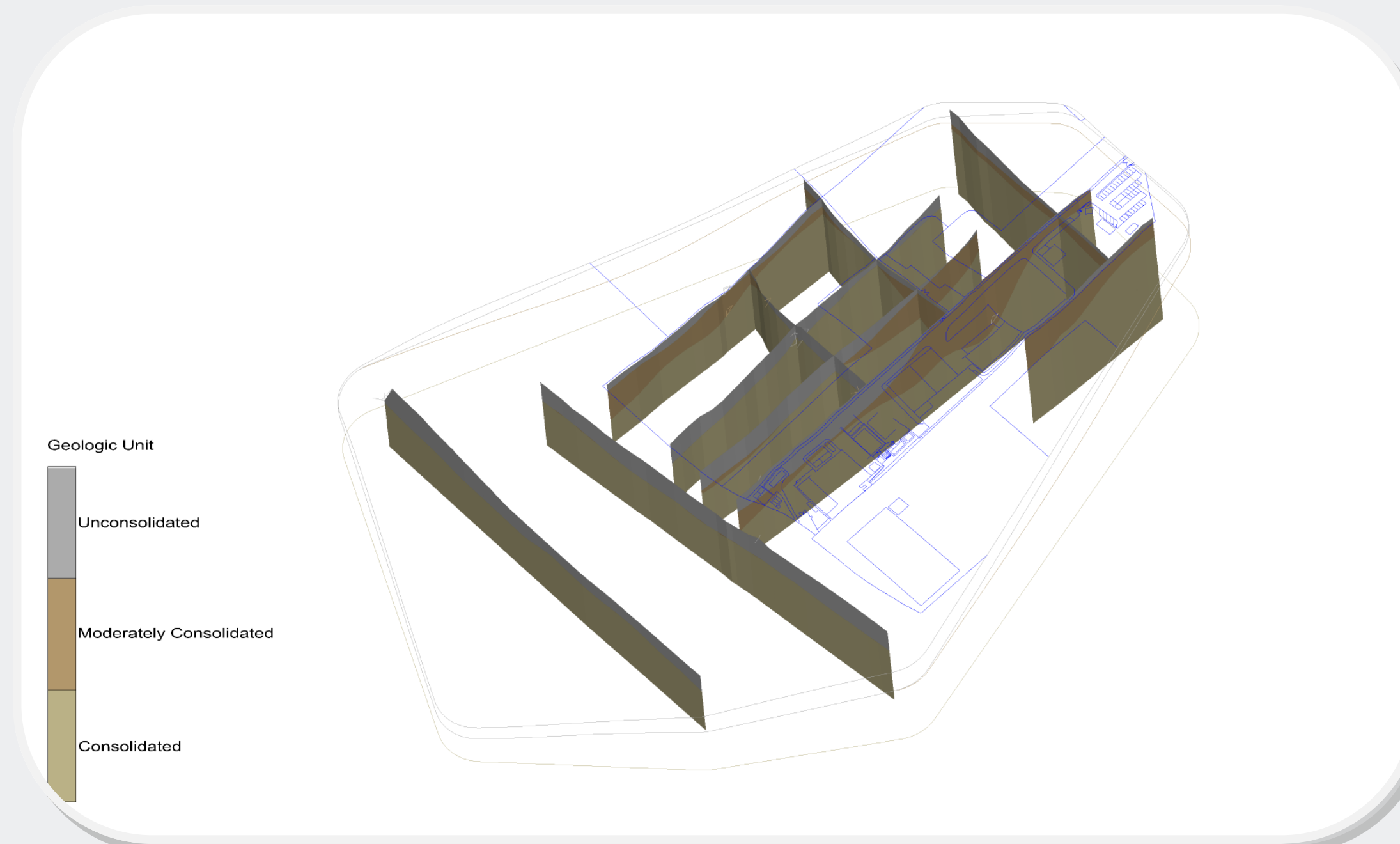
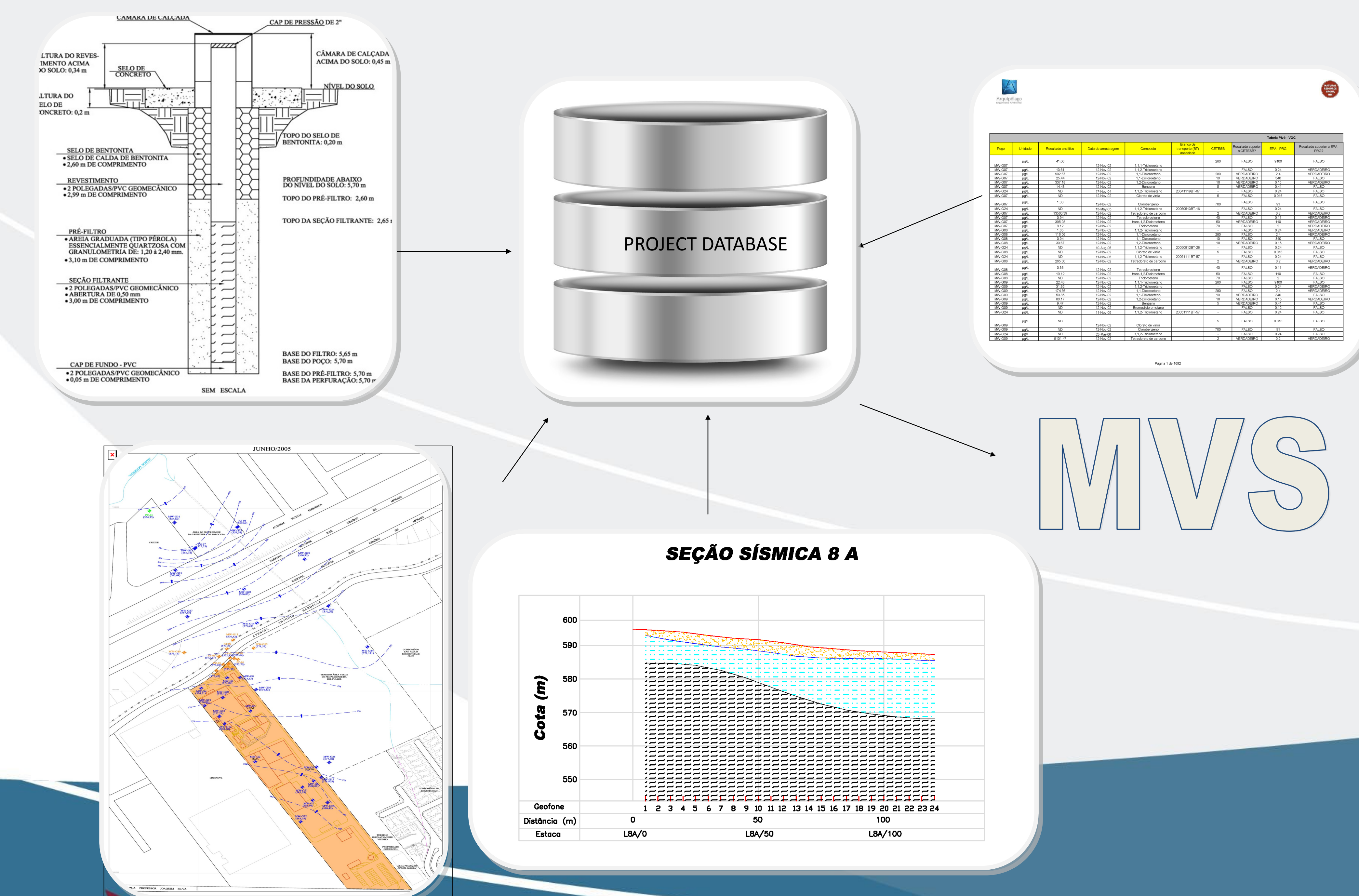
- 18% reduction in the Annual Sampling Program
- Identified an additional source area, defined residual contaminated mass sources
- Refined the groundwater plume architecture
- Provided intimate visual depiction of contaminant behaviors and distribution over time
- Identified and closed data and information gaps, and provided for more focused/targeted site activities including ongoing remedial action activities.



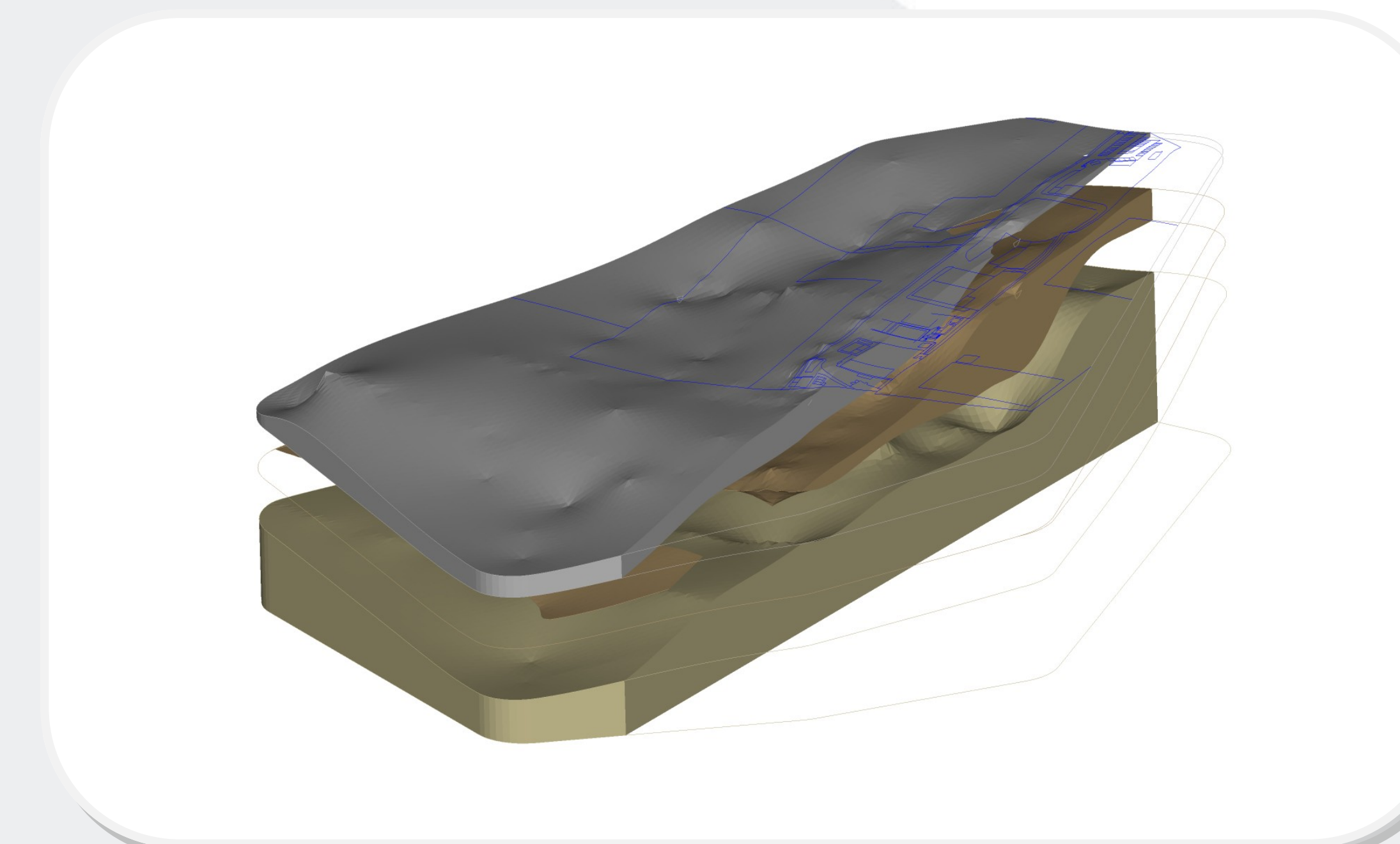
Cross Section of Carbon Tetrachloride Groundwater Plume



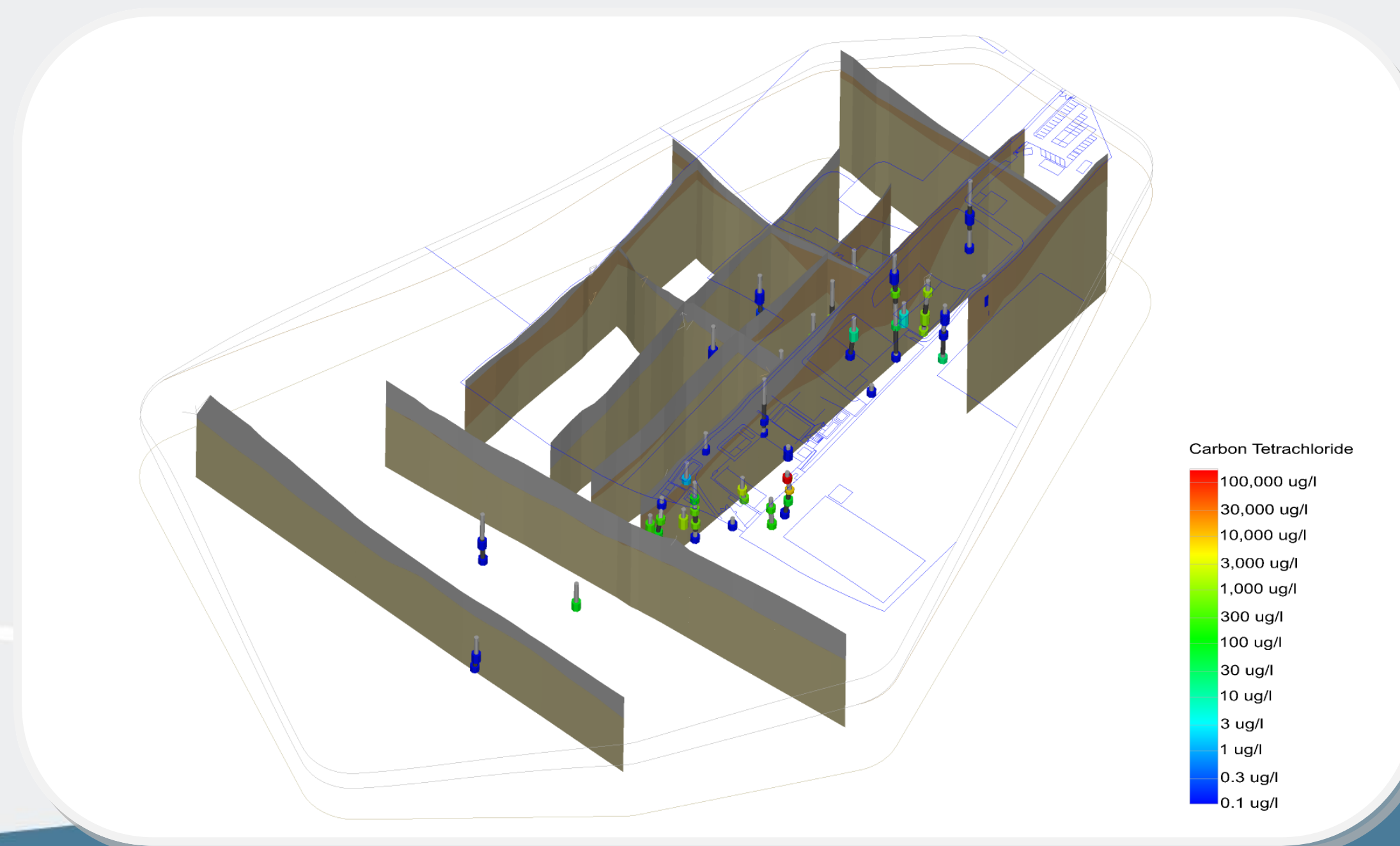
2D Evaluation of Carbon Tetrachloride in Groundwater



GEOLOGIC MODEL CREATED FROM SEISMIC PROFILES & INVESTIGATION DATA



COMBINED GEOLOGIC MODEL AND GROUNDWATER PLUME



GROUNDWATER WELL DATA AND GEOLOGIC FENCES