



# DATA ANALYTICS & VISUALIZATION

Access to high quality information is essential for making sound data-driven decisions. TIG Environmental's data and analytics experts develop the data, analytics, and technologies that empower our clients to make better and faster decisions with more confidence.

## Information & Data Management

Data is often an organization's most valuable strategic asset. To draw defensible conclusions in litigation and scientific investigations, it is critical that information is accurate, curated, and accessible. Our experts have decades of experience turning information into intelligence using the following techniques:

- Information management planning
- Data sourcing and compilation
- Modeling and database engineering
- Information management systems development
- Data quality assessment and management
- Data governance and curation

## Data Analysis & Statistics

We design and scale data evaluations to fit our clients' specific objectives. Our experts transform data into defensible conclusions that support data-driven decision-making.

Examples of our services include:

- Statistical analysis planning
- Fate and transport modeling
- Pattern recognition and trend detection
- Univariate and multivariate analyses
- Contaminant forensics and fingerprinting

## Digital Innovation

Digital innovation drives efficiency and collaboration across project teams and is central to the solutions we provide our clients. Our solutions provide access to information and analyses, empowering clients to make better and faster decisions with more confidence. Examples of our digital services include:

- Client accessible dashboards
- Data mining and intelligence gathering tools
- Custom software and model development
- Interactive data visualizations
- Cloud-based collaboration hubs
- Algorithms for advanced analytics
- Automated reports and analyses

## Spatial Data Analysis

Geographic Information Systems (GIS) analysis provides deeper insights about spatial relationships in data. Our experts use industry standard GIS software as well as custom-designed tools to uncover trends often missed by visual observation alone.

Examples of our spatial data services include:

- Spatial data management planning
- GIS data development

- Spatial data sourcing and curation
- Spatial modeling and data interpolation
- Area and volume-weighted calculations
- Interactive web maps and applications
- Geostatistical modeling

## Infographics & Visualization

Data visualizations provide a way to quickly assess what data look like. Our experts work closely with stakeholders to convey complex information and analyses in easy-to-understand visuals.

Examples of our data visualization services include:

- Conceptual site models
- Three dimensional models
- Animations and videos
- Charts, graphs, and timelines
- Technical diagrams
- Process diagrams and flow charts
- Information design



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## Superfund Data Management and Visualization Dashboard

**Problem:** During ongoing evaluations of a large complex Superfund site, our clients frequently posed questions about specific sites, media, and contaminants. Stakeholders and clients needed on-demand access to decades of analytical chemistry data, charts, and maps to evaluate suspected contamination sources and develop strategies.

**Solution:** TIG Environmental compiled multiple disparate datasets in a central database and made the data available through an interactive web-based solution. All project team members can readily map, tabulate, and visualize any subset of the data collected over multiple decades. Our solution developers worked with stakeholders to understand information needs, design and develop the system, and build an intuitive user interface. The application provides users the ability to directly query the database using simple drop-down menus while protecting the data from unauthorized changes. TIG Environmental also developed a collaboration hub where requests for information can be submitted by the client and addressed by the project team.

**Value Added:** The application has streamlined addressing questions regarding specific sites, media, and contaminants by making all analytical chemistry and GIS data available to the entire project team. The system is securely accessible online 24 hours a day on desktop and mobile devices. Data are used to inform stakeholders and support strategic decisions and actions across the project team.

## Triage and Intelligence Gathering e-Discovery Routine (TIGeR)

**Problem:** The discovery phase in litigation cases can produce millions of pages of information and extracting intelligence from the massive productions can be laborious and, in some cases, cost prohibitive. Commercial platforms for storing and mining information may be too costly for small to medium size cases and, in other cases, may not have the flexibility or capability to search for the key documents with critical information.

**Solution:** TIG Environmental developed a cost-effective software solution that can be readily customized to find documents containing relevant information for the specific cases. For example, TIGeR can locate documents with specific dates, analytical chemistry data, and descriptions of site-specific environmental pollution and/or process operations, among other topics. TIGeR flags documents that are irrelevant versus those that contain critical information for further review, reducing the amount of time experts and counsel need to identify critical information to the case.

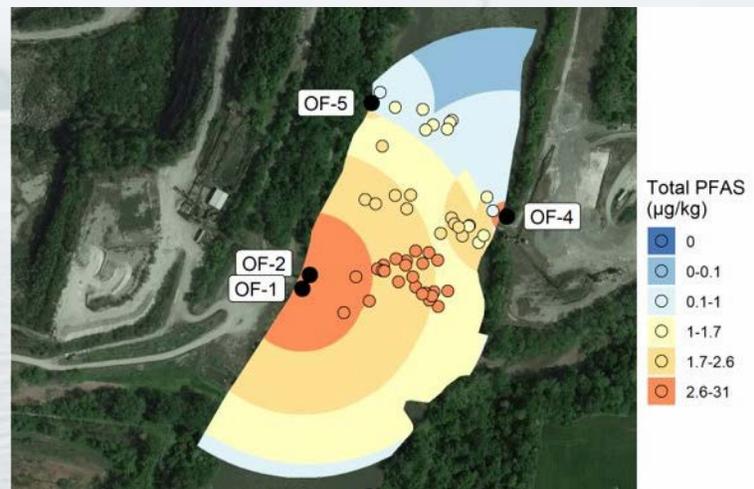
**Value Added:** TIGeR has provided a cost-effective solution to reduce the number of documents required for review by experts and counsel. Because it is scalable, it provides cost-effective document triage even for small to medium productions.

## Modeling Sediment Contamination with TIGSED

**Problem:** TIG Environmental has worked with multiple clients who are involved in large Superfund sediment sites. Operations have often resulted in suspected upland contributions to receiving waters spanning many decades and, in some cases, large geographic areas. As part of the allocation and source control process, our clients need to accurately characterize their historical and ongoing contributions to sediment contamination.

**Solution:** TIG Environmental employs TIGSED to determine the sediment contamination attributable to our clients' operations. TIGSED was developed by TIG Environmental to model sediment contributions from multiple discharge locations to evaluate source identification, source control, and natural recovery. For our clients' Superfund sediment sites, TIGSED has been used to assess sediment contamination attributable to client operations under different potential conditions, scenarios for which the historical and scientific record was uncertain, such as influence of aerial deposition on properties and the effect of different controls applied by our clients.

**Value Provided:** TIG Environmental's analysis determined that the contributions from our clients' sites were minor compared to the contamination present within sediment in the Superfund sites and indicated that ongoing discharges would not result in measurable recontamination. Application of this approach during allocation resulted in one of our clients receiving a small allocation share consistent with the contribution predicted by TIGSED.



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