Jamie Combes

Managing Scientist

Expertise

- Project management and data management
- Development/implementation of U.S. Environmental Protection Agency (EPA)-approved sediment remedial investigation work plans
- Development of state-approved site closure reports for petroleum-impacted sites
- Conceptual Site Model (CSM) development
- Data management and analysis
- Soil, sediment, and groundwater sampling plan development
- Historical research and technical evaluation for litigation support

Summary

Ms. Combes is a managing scientist with 21 years of experience in environmental investigations and remediation projects. She has expertise in preparing technical deliverables, including remedial investigation (RI) reports and work plans, sampling and analysis plans, data analysis reports, conceptual site models, and health and safety plans. Ms. Combes has designed, planned, and managed groundwater, soil, and sediment sampling, excavation, and remediation activities at a number of urban and industrial sites. Additionally, she has conducted historical and property research in association with due diligence and litigation support and identified contaminant sources and pathways.

Ms. Combes is also TIG Environmental's Data Analytics and GIS team leader. She has extensive experience in development and management of complex analytical and field databases using Microsoft Access and Earthsoft's EQuIS software. Other areas of expertise include data analysis and assessment and data visualization.

Professional Experience

Expert Consultant for Sediment and Uplands Cleanup Cost Allocation (2019–Ongoing)
Confidential Client, New York

TIG Environmental provides litigation support to a private client participating in a Superfund site allocation. The site includes nearly two miles of waterway in a heavily industrialized area of New York state. Contamination at the site includes PCBs and other chemicals. PCBs are the primary chemicals of concern. After an initial remedial design phase was completed, regulatory agencies required additional investigation of the study area. Findings from the investigation increased the estimated remedial cost nearly seven-fold. A comprehensive assessment of the watershed is necessary. The client has retained TIG Environmental's services for PRP identification and investigation, sampling and data analysis, and expert witness testimony. TIG Environmental has evaluated and investigated documents for PRP sites to gather evidence of historical releases related to operations, developed recommendations for site sampling, and developed a preliminary conceptual site model of the relationships between PRP operations and the contaminated waterway. TIG Environmental has also overseen additional site sampling and data forensic analysis to determine the deposition of PCBs and other chemicals that could be indicators of historical PCB use. TIG Environmental provided a data analysis report, final conceptual site model, and data visualization tools to assist the client in strengthening the connection between contamination in the waterway and adjacent PRPs, identified

PRPs that may not be responsible for contamination, and identified additional discharge points that may be associated with additional PRPs.

Since 2019, Ms. Combes has served as project manager for this project. She has developed soil and sediment investigation work plans for this project, including generating quality assurance project plans, health and safety plans, soil and sediment collection standard operating procedures, and field and data reports detailing field efforts and results of the sampling programs. Ms. Combes also ensured sampling was conducted in compliance with investigation work plans and managed teams to implement field sampling efforts. She has also served as data manager for this project, providing data management, assessment, and analysis support.

PCB Liability Investigation (2017–Ongoing)
Confidential Client, Oregon

TIG Environmental is providing technical expert consultation for environmental and natural resource damage alleged to result from releases of PCBs in the state of Oregon. The primary objective of this work is to provide expert support to estimate the past, current, and potential future costs that have been or may be incurred by the client to investigate and remediate upland and in-water sites as a result of damages caused by the presence of PCBs throughout the environment. To accomplish this, TIG Environmental is responsible for developing a comprehensive project database that contains available analytical chemistry data for all matrices (for example, sediment, tissue, surface water) collected from state lands and waterways.

Since 2017, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support. In 2020, Ms. Combes assumed the role of project manager.

Technical Consultation and Allocation/Litigation Support (2017–Ongoing)
Confidential Client, Multnomah County, Oregon

TIG Environmental provides technical expert support for environmental liability assessment and cost allocation for the remediation of sediments at the Portland Harbor Superfund Site and for the associated Natural Resource Damages claims. The harbor has been the site of numerous manufacturing, shipbuilding, petroleum storage and distribution, metal salvaging, and electrical power generation operations for more than a century. Development of expert reports has included research and forensic analysis to determine the specific contaminant nexus to the sediments for each upland PRP. Specific forensic analysis has included evaluation of potential historical contaminant sources, chemical fingerprinting of PAHs, PCBs, PCDD/Fs, and contaminant fate and transport. Key issues revolve around potential contributions from state-maintained roads, bridges, and other right-of-way properties and supporting facilities. This effort has included collection and evaluation of sediment, stormwater, and bridge paint samples. TIG Environmental is also responsible for evaluating the potential relationship between activities on state-owned submerged lands and the contamination in the river.

Since 2017, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support.

Technical Consultation and Litigation Support (2017–Ongoing)
Confidential Clients, New Jersey

TIG Environmental provides technical and litigation support for environmental liability assessment related to sediment remediation at a complex urban river Superfund site. Investigative services performed include acquisition of historical records, primary witness testimony, environmental data, and technical reports for the identification and assessment of PRPs associated with the site. Contaminant source identification involves evaluation of the historical operations of hundreds of upland sites; fate and transport analysis; and investigation and mapping of the historical storm, sanitary, and combined sewer systems of numerous municipalities. TIG Environmental manages the database encompassing all historical sediment data associated with the site.

TIG Environmental personnel are heavily involved in leading remedial investigation and feasibility studies activities on the Passaic River. Activities focus on technical support related to the investigation and remediation of this urban tidal river. Most recently, TIG Environmental was instrumental in designing and overseeing removal of 40,000 cubic yards of contaminated sediments as part of the Passaic River Phase I Removal Action Project, implemented under EPA purview.

Since 2017, Ms. Combes has served on the technical team conducting detailed analysis of environmental documents, lease agreements, deed transfers, and historical photographs. These research findings are summarized in reports that evaluate the potential relationship between activities conducted on sites of interest and contamination in the river. Ms. Combes has also been data manager for this project, providing data management, assessment, and analysis support.

Technical Consultation and Litigation Support (2017–Ongoing)
Confidential Clients, New Jersey

TIG Environmental provides technical and ligation support for environmental liability assessment related to sediment remediation at a large Superfund bay estuary complex, part of the larger New York/New Jersey Harbor Estuary. This is hydraulically connected to the Passaic River Superfund Site and includes portions of the Hackensack River, Arthur Kill, and Kill van Kull. TIG Environmental is performing investigative services including the acquisition of historical records, primary witness testimony, environmental data, and technical reports for identification and assessment of PRPs associated with the site. TIG Environmental is developing information on industrial, manufacturing, commercial, public works, and other potential sources with direct or indirect discharges to the Newark Bay Study Area (NBSA). TIG Environmental is helping its client comply with an Administrative Order on Consent and is compiling and developing information on potential sources and associated outlets of potential concern potentially affecting the NBSA sediments.

TIG Environmental personnel were heavily involved in leading RI/FS activities on the NBSA. Activities focused on technical support as it related to investigation and remediation of the NBSA. TIG Environmental personnel were engaged in the support of NBSA RIs/FSs, particularly regarding identification and characterization of stormwater and combined sewer overflows that have played a role in effects to the NBSA sediments. TIG Environmental also actively acquired and compiled information

on publicly owned treatment works (POTWs), including their upstream collection system networks and their role as potential contaminant sources.

Since 2017, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support.

Technical Support of Cost Allocation (2017–Ongoing)
Confidential Client, Seattle, Washington

TIG Environmental provides expert technical support to a private property owner participating in a Superfund site allocation. The Superfund sediment site consists of five miles of an urban and industrial estuarine waterway. Working with the property owner's attorney, TIG Environmental evaluated potential sources of PCB contamination in sediments adjacent to the property and has developed an allocation strategy based on forensic chemistry and sediment transport modeling.

Since 2017, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support.

South Park Marina Remedial Action (2017–Ongoing)
South Park Marina Limited Partnership, Seattle, Washington

TIG Environmental assists the owner of a recreational marina site in the South Park neighborhood of Seattle, Washington. This site is the subject of remedial action under an Ecology-Administered Agreed Order. Soil and groundwater at the site are contaminated with PCBs, petroleum hydrocarbons, volatile organic compounds, pesticides, and metals requiring cleanup under the State of Washington's MTCA. TIG Environmental's work includes investigation of historical sources of contamination both on- and off-site. As a result, TIG Environmental identified and nominated additional potentially liable persons (PLPs) for release(s) of hazardous materials affecting the Site to Ecology. These PLPs are now involved as participants under the Agreed Order. TIG Environmental, on behalf of South Park Marina Limited Partnership, and the other PLPs are working in partnership to oversee the completion of the tasks required to be performed under the Agreed Order: RI work plan, RI field activities, source control evaluation, and RI Report. TIG Environmental has completed several source control, RI, FS, and preliminary engineering design tasks supportive of efforts under the current Agreed Order and/or future formal program designations.

Since 2017, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support.

Design for Sediment Removal, Capping, and Natural Attenuation (2015–Ongoing)
Yosemite Slough Cooperating Parties Group, San Francisco, California

TIG Environmental and a co-consultant are conducting pre-remedial design studies aimed at refining the EPA-proposed multi-technology removal action in a contaminated intertidal channel in a highly urbanized area within San Francisco Bay. Studies include specialized evaluations of sedimentation rates; depth of the biologically active zone; bulk sediment and pore water chemistry; erosion and

particle transport; and geotechnical parameters. Overall, the studies will support the design for dredging, capping, and natural recovery of contaminated sediments.

Since 2017, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support.

Technical Consultation and PRP Identification (2015–Ongoing)
Confidential Client, New Jersey

TIG Environmental is providing technical support on investigative identification of PRPs in a tidal river system with contaminated sediments. Evaluation includes research and forensic analysis to determine the nexus from investigated upland PRP sites to the tidal river system's specific contaminants; results are being used to prepare internal fact reports to transmit detailed, referenced research to the client and counsel.

Since 2021, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support.

South Park Marina Remedial Action (2017–Ongoing)
South Park Marina Limited Partnership, Seattle, Washington

TIG Environmental assists the owner of a recreational marina site in the South Park neighborhood of Seattle, Washington. This site is the subject of remedial action under an Ecology-Administered Agreed Order. Soil and groundwater at the site are contaminated with PCBs, petroleum hydrocarbons, volatile organic compounds, pesticides, and metals requiring cleanup under the State of Washington's MTCA. TIG Environmental's work includes investigation of historical sources of contamination both on- and off-site. As a result, TIG Environmental identified and nominated additional potentially liable persons (PLPs) for release(s) of hazardous materials affecting the Site to Ecology. These PLPs are now involved as participants under the Agreed Order. TIG Environmental, on behalf of South Park Marina Limited Partnership, and the other PLPs are working in partnership to oversee the completion of the tasks required to be performed under the Agreed Order: RI work plan, RI field activities, source control evaluation, and RI Report. TIG Environmental has completed several source control, RI, FS, and preliminary engineering design tasks supportive of efforts under the current Agreed Order and/or future formal program designations.

Since 2017, Ms. Combes has been data manager for this project, providing data management, assessment, and analysis support.

Environmental Impact Assessment for the Curonian Lagoon (2020–Ongoing)
Confidential Client, Klaipeda, Lithuania

TIG Environmental is assisting with an environmental impact assessment for the Curonian Lagoon. The Curonian Lagoon is a 625 square mile, highly industrialized and eutrophic, freshwater lagoon near Klaipeda, Lithuania with a watershed consisting of about 100 thousand square kilometers. TIG Environmental was retained to perform an expert environmental impact assessment due to a company's possible discharge of partially biologically treated wastewater into the Curonian Lagoon. TIG obtained data for an approximately 10-year period from public and private sources and designed a

water quality modeling assessment to evaluate a range of discharge scenarios on nitrogen, phosphorous, and biological oxygen demand throughout the lagoon. Study data and modelling results indicated that the company's release of partially biologically treated wastewater had no significant adverse effect on nitrogen or phosphorus concentrations, nor dissolved oxygen depletion. The environmental impact assessment concluded that eutrophication observed in the lagoon is controlled by factors unrelated to the partially treated wastewater. The expert assessment aimed to establish the fact and extent of damage to the waters of the Curonian Lagoon and, pursuant to EU Directive and legislation of the Republic of Lithuania, submit proposals regarding the environmental recovery measures.

Since 2020, Ms. Combes has served as project manager for this project. She is also the data manager for this project, providing data management, assessment, and analysis support.

Data Manager for Multiple Sites (Arcadis, 2001–2017)
Confidential Clients, United States

Ms. Combes served as data manager for multiple sites across the United States, providing data management, assessment, and analysis support. She managed very large, complex relationship-based Microsoft Access databases for multiple sites containing current and historical data sets. Ms. Combes also prepared data management plans detailing project-specific data needs and assessments/evaluations and documented database content. She also prepared formatted data table outputs and statistical summaries to meet project needs.

Project Manager for Large-Scale CERCLA Site (Bay) in NY/NJ Region (Arcadis, 2005–2017)
Confidential Clients, New Jersey

Arcadis provided technical support for environmental assessments related to sediment remediation at a large Superfund bay estuary complex that is part of the larger New York/New Jersey Harbor Estuary. This is hydraulically connected to the Passaic River Superfund Site, and includes portions of the Hackensack River, Arthur Kill, and Kill van Kull. Investigative services performed by Arcadis included design and implementation of sediment sampling, risk assessment sampling, management and evaluation of environmental data, and development of technical reports for evaluation of nature and extent of contamination in the Bay.

Ms. Combes served as project manager, developing regulatory agency-approved investigation work plans and coordinated development of two comprehensive sediment investigation programs, which obtained more than 200 sediment samples. These programs included generation of quality assurance project plans, health and safety plans, sediment collection standard operating procedures, and field and data reports detailing field efforts and results of the sampling programs. Ms. Combes also ensured sampling was conducted in compliance with EPA-approved investigation work plans, and managed teams to implement field sampling efforts. She also coordinated compilation and presentation of all known data associated with the bay and used that information to develop a conceptual site model.

Associate Project Manager for Upland Sites in the Southeast (Arcadis, 2010–2014)
Confidential Client, North Carolina, South Carolina, Georgia, Alabama

Arcadis provided technical support for environmental assessments related to lead and arsenic impacts to soil and groundwater at multiple sites in North Carolina, South Carolina, Georgia, and Alabama.

Ms. Combes served as associate project manager, managing development and implementation of regulatory agency-approved investigation work plans and corrective/remedial action work plans at numerous upland sites impacted by lead and arsenic. She coordinated investigations, including the installation of groundwater monitoring wells and soil borings, to assess the nature and extent of site contaminants of concern and support the remedial decision-making process. Ms. Combes also coordinated corrective/remedial actions ranging from monitoring natural attenuation to design, construction, and excavation.

Task Manager for Petroleum-Related Upstream Sites (Arcadis, 2011–2013)
Confidential Client, Texas and Oklahoma

Arcadis provided technical support for soil and groundwater investigations in Texas and Oklahoma with petroleum-related impacts at operable and decommissioned compressor stations and gas plants, resulting in site closures at all sites.

Ms. Combes served as task manager, coordinating investigation and remediation activities around ongoing site work, and dovetailing investigation and remediation programs with other concurrent site work to obtain regulatory closure without interruption of non-related site activities. She coordinated with senior technical advisors in hydrogeology, innovative remedial technologies, and remedial engineering design, experts and support staff in risk assessment and data management, and senior experts in Texas and Oklahoma regulations and guidelines. She also coordinated with site managers and field staff experienced in project work at upstream oil and gas compressor stations and gas plants. Ms. Combes prepared site closure reports for 11 sites, resulting in regulatory closure for all sites.

Academic Qualifications	BS in Environmental Science, Nazareth College, 2001
Professional Training	• Certified Project Manager • 40-Hour OSHA Hazardous Waste Operations (HAZWOPER) Safety Training (29 CFR 1910.120)
Publications	Negley, T., N. Rose, J. Combes. “Improving the Accessibility of Geospatial Data Evaluation and Visualization for Project Teams.” Poster, Battelle – Tenth International Conference on Remediation and Management of Contaminated Sediments, New Orleans, LA, February 2019.