Michelle Mirigliano

Senior Geologist

Ms. Mirigliano has 20 years of experience in environmental consulting with a focus on site remediation services. She has lead and assisted staff geologists in fieldwork related tasks, and also served as field team manager for site remediation projects. Her project experience includes site assessments, remedial investigations, subcontractor management, budget development and management, and technical report writing. Michelle's field experience includes ground water, soil, and soil gas and indoor air sampling, chemical injections (H_2O_2 and $KMnO_4$), measuring field parameters, supervision of monitoring well installation, reviewing geophysical logs, and logging of soil and bedrock.

Fields of Competence

- Environmental Investigations
- Preliminary Assessments
- Phase II Environmental Site Assessments
- Preparation of regulatory submittals, proposals, and budgets
- Data analysis and technical report writing
- Monitoring well design, installation, sampling, and abandonment
- Various Drilling techniques including, hollow stem auger, mud-rotary, air hammer, and sonic
- Ground water and soil sampling using standard and innovative technological advances
- Geological logging of soil and bedrock
- Drafting of various contour maps and cross sections
- Proficient in Microsoft Word, Excel, and PowerPoint
- Collecting and interpreting miniTroll data
- Reviewing geophysical logs and packer testing

Education

- B.S., Geosciences, Pennsylvania State University, 1999
- 40-hour OSHA (29 CFR 1910.120) course Hazardous Waste Operations and Emergency Response (HAZWOPER) Training 2000
- 8-hour annual refresher training of (29 CFR 1910.120) for Hazardous Waste Site Operations, 2001 to present
- 8-hour HAZWOPER training for Supervisors, 2013
- Transportation Worker Identification Credential (TWIC), expires October 2017
- First Aid/AED/CPR certification

Key Projects

Completed ground water sampling at a northern New Jersey site.
Used Geoprobe to investigate soil gases and collect ground water samples. An OVA (organic vapor analyzer) tested for soil gases. Ground water samples were tested for TCL VOCs, TCL SVOCs, TAL Metals, Sulfides, and Cyanide.

Participated in well installation, well development, soil waste characterization, TCRA, drum location and sampling, and fine fraction soil sampling at a Superfund site in Virginia.
Sampling of fine fraction (by hand auger) and drums was done in Level C. Composite soil samples were tested for Asbestos, TCLP Metals, Pesticides, VOCs, and SVOCs. Ground water samples were tested for PCBs, Pesticides, Sulfides, Alkalinity, Metals, Hexavalent Chrome, VOCs, and SVOCs.

Completed ground water sampling, and organized quarterly soil gas and indoor air sampling events at a northern New Jersey facility.
Performed Low-Flow purging (Bennett Pump) in addition to conventional three volume sampling methods. Measured water and free product levels. Collected samples for metals, VOCs, SVOCs, BTEX, and natural attenuation parameters. Used a HORIBA flow-thru cell to continuously measure field parameters including turbidity. Installed soil gas and indoor air sampling points, collected samples in tedlar and 6L summa canisters. Completed indoor air surveys for each event.

Conducted multi-phase extractions for select on site monitoring wells.
Main oversight for installation of soil vapor extraction points at various on site locations. Participated in soil gas and summa canister air sampling to monitor performance of biosparging system. Used TVA 1000 meter, combined PID and FID, along with V-Rae Multigas meter (monitors LEL, CO2, H2S, and O2). Organized quarterly ground water sampling events as project task manager.

Project Geologist on an investigation to assess and remediate a site in Lancaster County, PA for a PADEP ACT 2 release from liability.
Soil borings were completed using Hollow Stem Auger and Geoprobe. Soil samples were collected using En-Core Samplers to test for VOCs. A PID (photoionization detector) was used to test for soil gases. Supervised the installation of two monitoring wells using Air-rotary Hammer. Participated in well development, measuring field parameters with a YSI meter. Completed soil boring and monitoring well logs. Assisted in report preparation and site ground water models.

Assisted the Project Geologist on a large-scale project evaluating the long-term performance of a ground water treatment system on a former Naval Air Base in southeast Pennsylvania.
Participated in standard ground water sampling events and using passive diffusion barrier samplers in nearly 80 wells. A prior event included purging and sampling 100 + monitoring wells by using conventional methods.

Participated in a pilot tracer test of in situ chemical oxidation and enhanced in situ bioremediation of chlorinated solvents in groundwater at a Superfund site in Dublin, PA.
Supervised installation of injection well, prior to tracer test. Assisted in setup of pump and treat system prior to start of test. Sampling of fire tower well (FTW) was done using discrete interval no purge samplers, HydraSleeves™. Discrete intervals were selected based on results collected from an Electromagnetic Borehole Flowmeter (EBF) test, which was used to delineate the vertical profile and hydraulic conductivity of FTW. Participated in setup and interpretation of EBF results. The tracer test consisted of using a dye tracer, Rhodamine WT and a bromide solution. Charcoal receptors were used at discrete depths to measure amount of Rhodamine WT in FTW. Onsite Bromide analysis was done with a Thermo Orion Model 290 A+ probe. Other dyes used were Fluorescein, Eocine, and sulforhodamine B and injected into three other onsite wells to verify ground water flow into the FTW. Also at the Dublin site, a Nomad™ S70 submersible pump was used for low flow sampling to test onsite wells for TCL VOC, LHC, PG, TAL Metals (field filtered), Fe, Mn,

Key Projects (continued)

sulfate, nitrate, nitrite, chloride, sulfide. Conducted pilot testing with potassium permanganate (KMnO4). Performed mixing and monitoring injection rates of KMnO4. Currently performing pumping test of FTW. Collecting weekly ground water samples, datalogger readings, and miniTroll data. In 2008, assisted GeoSyntec consultants in implementing a pre-design investigation (PDI) which would result in ISCO injections of KMnO4. PDI included oversight of drill team while installing up to 8 additional bedrock monitoring wells. Lead onsite walk-throughs with EPA and PADEP, as well as managed correspondence with Borough leaders, site property owner, and adjacent property owners. Additionally, I provided oversight for packer testing and geophysical crews, while collecting ground water samples from newly installed monitoring wells at various intervals. Coordinated property access agreements with nearby property owners. Assisted GeoSyntec consultants with coordinating contact between site property owner for access and use of lot for storage of injection equipment.

As Project Geologist performed a Phase II investigation on soil and ground water at a site in East Stroudsburg Pennsylvania.
The factory formulated and packaged liquid industrial grade cleaners, sanitizers, detergents, and disinfectants. Participated in selecting Geoprobe boring locations and coordinating with the analytical laboratory. Responsibilities included budget development, analytical data preparation, and report writing.

As Project Geologist conducted quarterly ground water monitoring at an electrical generating facility in Millsboro, DE.
For each sampling event, she organized staff, coordinated with lab and site contact, and completed each event. Assisted in hydrogen peroxide (H2O2) injections along riverbank to cleanup residual free-product.

Project Manager overseeing quarterly ground water sampling events associated with a natural attenuation evaluation program at a local site in West Chester, PA.
Revised the Monitored Natural Attenuation Evaluation Work Plan, and completed an add-on proposal and budget to encompass additional sampling events per EPA's comments. In 2007, after completing the MNA evaluation and demonstrating MNA is an effective remedy without active remediation, the client received approval from EPA for this remedy. The client is required to continue sampling once every 5th quarter to demonstrate that the benzene plume remains onsite.

Organized, implemented, and assisted in completing several field tasks including oversight of new and temporary well installation, soil, surface water, seep, ground water and air sampling, slug tests, and stream flow measurements.
Directed subcontractors and was the main site contact for EPA, Army Corps of Engineer, and client representatives. Interpreted ground water contour maps and geologic cross sections to assist with preliminary cap design for a site in Hometown, PA.

Task manager for sitewide ground water sampling event in northern New Jersey.
Scheduled field crews, organized lab services, prepared field team brief and other pertinent documents, and fielded questions from field crews during sampling. Tabulated and interpreted field screening data, interpreted ground water contour maps. Reviewed chain of custody sheets and lab invoices daily. Eight week event was completed in 6 weeks time and within budget.

Field task manager for Superfund project in Baltimore, MD.
Organized, implemented, and assisted with tasks related to a remedial investigation of a 150 acre Landfill. Directed several subcontractors including drill team, surveyor team, and geophysical team. Tasks included oversight of field crews during the installation of 40 monitoring wells, 20 geotechnical borings, installation of over 20 soil gas points, and over 100 soil cover thickness points. Completed sediment, surface water, soil, and soil gas sampling. Organized field teams, sample analysis lists, and lab orders for extensive ground water sampling event of monitoring well network. Filled role as lead onsite contact for EPA and MDE representatives. Prepared daily reports and updated data templates,

which were imported into an EQuIS data base. Used an X-Ray Fluorescence (XRF) meter to field screen soil for presence of select metals. The field effort, which began in July 2008, was completed in early December 2008. Assisted in preparing figures, data tables, and text for RI report.

Project Manager – Three moving/storage rental facilities in Pennsylvania. Prepare annual budgets and proposals for remediation monitoring under Act 2 UST program. Prepared Site Characterization Reports (SCR), Remedial Action Completion Reports (RACR) and environmental covenants.

Project Manager – Rental Car Corporation in Pennsylvania. Prepared budget and proposal to complete attainment sampling.

Served as Field Geologist on numerous other remedial investigations including vapor intrusion investigations. Performed several preliminary assessments for properties in New Jersey. Prepared Remedial Investigation Reports, Remedial Action Reports, and fulfilled necessary Public Notification requirements per NJ regulations.