Thomas D. Gillespie, P.G.

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# PROFILE

Geologic, hydrogeologic and strategic regulatory expertise provided to private sector clients in: contaminant hydrogeology; oil & gas exploration and development; mining; geologic hazards; water resources. Uniquely qualified to focus on the specific conditions and needs of extractive industries via an educational background in structural and hydrostructural geology with research specialties in natural hydraulic fracturing and groundwater flow through consolidated bedrock aquifers.

Technical expertise, combined with the insights of a former industry insider’s savvy of operations and the regulatory acumen of a former agency reviewer and bureau official, ensures approvable regulatory solutions for extractive industry permitting, regulatory compliance, sensitive land and water use approvals as well as corrective actions. Litigation support and expert witness in hydrogeology, geologic forensics, oil and gas operations, mining, water supply, geologic hazards, stormwater, land use and environmental forensics.

Current research specialty in groundwater flow through consolidated bedrock formations. Professor of geology, continuing professional education instructor and invited lecturer on geology, hydrogeology, oil & gas, mining, water resources, geologic hazards. Invited to present to the Pennsylvania Senate and Assembly regarding regulatory reform, professional purview in permitting, geologic inputs in land use decisions and geologic hazards.

**Distinctions**

Pennsylvania Registration Board for Professional Engineers, Land Surveyors and Geologists-

2005 – 2017 – two-term Board President; two-term Board Vice President

National Association of State Boards of Geology

2005-Present; Executive Committee, 2014 – 2017 SME in structural geology, hydrogeology, engineering geology.

Pennsylvania Council of Professional Geologists

Founding member; Board of Directors, 1992 - Present

Marcellus Shale Coalition Board of Directors 2012 - 2019

Professor of Geology 1988 – 2020

Continuing Education Instructor 1992 - Present

# Career summary

## Gilmore & Associates, Inc.

**Principal Geologist** **- current**

Strategic regulatory representation and litigation support for clients in mining, oil and gas and land development throughout design, permitting, public hearings, regulatory compliance; karst evaluations, mitigations and hydrology including dye tracer studies; geologic hazards; water supply; water resource management; stream restoration; stormwater management.

## Inflection Energy LLC – 2012 - 2019

**Director of Field Operations, Regulatory, Environment, Health & Safety**

Successfully developed the 50,000-acre area of interest for this natural gas exploration and development company. Directed the on-time permitting and construction of more than a dozen natural gas well sites, miles of conveyance lines and more than 30 natural gas wells. Obtained full approvals for permits, local land use/zoning approvals; field facilities design; water supply from a National Scenic and Historic River; supervised field development and construction; developed successful regulatory approaches and strategies for all aspects of operations; provided successful responses to notices of violation and public complaints; represented company in legal proceedings including favorable rulings from the PA Commonwealth Court and Supreme Court.

## Gilmore & Associates, Inc. 2011 - 2012

**Principal Groundwater and Engineering Geologist**

Lead geologist for all geo-service sectors including oil & gas, mining, karst geo-hazards, engineering geology, water resource management. Served as forensic geologic expert for multiple litigation cases at all levels of the Court systems.

## The ELM Group – 1995 - 2011

**Principal Geologist**

Built a practice area which expanded company more than $2MM/year including a litigation support practice area and continuing education provision service area. Instrumental in the elimination of CERCLA responsibilities for PRP groups at four Superfund Sites in the lead acid battery reclamation industry. Selected as one of only three nation-wide forensic experts to represent the Pentagon’s Army Environmental Center in successful streamlining evaluations of U.S. Army Superfund Sites under the Land Excising and Base Realignment and Closure programs. Opened new market areas in hydrology, surface water, mining, geologic hazards, water resource management. Successfully represented multiple insurance cost recovery cases. Successful representation of multi-national clients in multi-state acquisition/divestment assessments and environmental facility closures.

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**LANGAN ENGINEERING SERVICES, INC.** **1989 – 1995**

**Geologist/Hydrogeologist**

Start-up of highly lucrative Pennsylvania operations of this NJ-based geotechnical and environmental consulting practice. Won corporate contracts from multi-national corporations and provided favorable representation in acquisitions, divestitures, Superfund case negotiations and regulatory solution development.

**Complete career summary is available upon request**

**UNIVERSITY FACULTY**

**The College of New Jersey**, Trenton, New Jersey, 1988 – 2019 *(Introductory and Physical Geology)*

**LaSalle University**, Philadelphia, PA, 2007 *(Structural Geology)*

**Continuing Education Course INSTRUCTOR**

Hydrostructural Geology: sole instructor of advanced level, 8-hour hydrogeology continuing education courses sanctioned for CEUs in five states for Professional Geologists, Professional Engineers and Licensed Site Remediation Professionals. Courses specialize in groundwater flow and contaminant transport in bedrock aquifers.

Environmental Forensics Courses:

From Outcrop to Output – advanced hydrogeology

Undercurrents in Site Remediation – hydrogeology for NJ LSRPs

The Invisible Gorilla in the Courtroom – CLE course on Managing the Expert

Hydrogeologist in the Wake of the SCOTUS Functional Equivalency Decision

Hydro-Structural Geology in the Site Remediation Arena

The Elephant in the Environmental Courtroom – continuing legal education course

approved for attorney CLEs in NJ, PA and NY

The Feather in Your Cap – Contaminant Hydrology for Attorneys - continuing legal

education course approved for attorney CLEs in NJ, PA and NY

Preparation Course for candidates to take the National Association of State Boards of Geology uniform national examination for the licensing of Geologists in Training and Professional Geologists

**invited lecturer**

**Marcellus Shale Coalition**

Well Bore Deviation: Regulatory, Legal and Technical Analyses, 2016

Certification Requirements for Engineering, Land Surveying and Geologic Professional Services, 2019

Jurisdiction of Design Components of ESCGP Applications Signed and Sealed

by Pennsylvania-Licensed Design Professionals

Of Spills, Releases, Incidents: Words, Risks and Geology in the Marcellus Natural Gas Arena. 2017

**Pennsylvania Aggregates and Concrete Association**

Reducing Permitting Delays, 2023 – PACA Annual Meeting and Honors Program

The Philosophy of Regulatory Representation, 2023 – PACA Environmental Community Meeting

geoResource Risk Reduction in the Wake of the SCOTUS Functional Equivalent Decision, 2020 and Update in 2021, PACA Environmental Community Meeting

**EDUCATION**

M.S., Rutgers University; Hydro-Structural Geology

* Research: Natural hydraulic fracturing, seismic pumping, and brecciation in the high-grade metamorphic terrane of the Proterozoic Reading Prong
* Current research in hydrostructural geology, groundwater flow in bedrock aquifers.

# PUBLICATIONS

**Hydrogeology**

Gillespie, T.D., 2022, Hydrostructural Geology, Pennsylvania Council of Professional Geologist, Book to accompany continuing education course for professional geologists

Gillespie, T.D., 2019, ,Amicus Curiae Brief of Thomas D. Gillespie re: Briggs v Southwestern Energy, Supreme Court of PA

Gillespie, T.D. and McLane, C., 2009, Modeling Structural Controls on Groundwater Flow and Solute Transport in Fractured Consolidated Aquifers, Geological Society of America, Abstracts with Programs, V 41, No.7

Gillespie, T.D. 2007, Thermal Impact Assessment of Storm Water Management Practices on In-Stream Temperatures of a Trout Production, Cold Water Fishery Headwater Stream in Northeastern Pennsylvania: A Watershed-Based Analytical Modeling Approach to Stormwater Management, American Water Resources Association.

Gillespie, T.D. 2001, Karst Feature Control on the Mobility of Petroleum Residues in Groundwater: A Hydrocarbon Reservoir Analogue, in: Gillespie, T.D. 2000, Karst Feature Control on the Mobility of Petroleum Residues in Groundwater: A Hydrocarbon Reservoir Analogue

Gillespie, T.D. 2000, Karst Feature Control on the Mobility of Petroleum Residues in Groundwater: A Hydrocarbon Reservoir Analogue, In, Proceedings of the 8th International Conference on Karst and Sinkholes, Louisville, Kentucky.

Gillespie, T.D. 1994, Karst Feature Control of Petroleum Contamination Migration: A Hydrocarbon Reservoir Analogue, Geological Society of America, Abstracts with Programs, Vol. 26, No. 7.

Gillespie, T.D. 1993, Structural and Metamorphic Constraints on Groundwater Flow and contaminant transport in a Pelitic, Gneissose Schist at a Superfund Site in Western Connecticut, Geological Society of America Abstracts with Programs, Vol. 25, No. 6.

Gillespie, T.D. 1991, Structural Constraints on Groundwater Flow and Contaminant Migration in a Dolomite Aquifer in Western New Jersey, Geological Society of America, Abstracts with Programs, Vol. 23, No. 5.

Gillespie, T.D. 1990, Determining Aquifer Characteristics, in, Aspects of Ground Water in New Jersey, Proceedings of the Seventh Annual Meeting of the Geological Association of New Jersey.

**Structural Geology**

Gillespie, T.D. 1999, The 1994 Sinkhole at North 7th Street, Centre City, Allentown: Natural Sinkhole Hazards in the karst terrains of the Lehigh Valley and the Implications for Land Use and Development Decisions, in Proceedings of the Pennsylvania Geologic Survey Annual Field Conference, Allentown, Pennsylvania.

Gillespie, T. D. 1996, Geology of the February 23, 1994 Corporate Plaza Sinkhole, Centre City, Allentown, in Geological Society of America.

Gillespie, T.D. 1993, A Breccia Dike Complex in the Franklin Marble at McAffee, New Jersey in, A Geologic Traverse Across the PreCambrian of New Jersey, Geologic Association of New Jersey, J. Puffer, Ed., Ch. 5.

Gillespie, T.D. 1993, Structural and Metamorphic Constraints on Groundwater flow in a Pelitic, Gneissose Schist at a Superfund Site in Western Connecticut, Geological Society of America Abstracts with Programs, Vol 25., No. 6.

Gillespie, T.D. 1987: Structure and Geochemistry of a Breccia Dike Complex in the New York Recess; Rutgers University, MS Thesis.

**Summary of select expert and litigation support cases**

**Shell Energy Resources**

Represented Shell in a case brought by the NJDEP against all major petroleum companies for MTBE contamination of groundwater at more than 5500 retail gasoline stations across the state. Forensic evaluation of existing data, preparation of expert report, deposition in federal court. Case against Shell was dismissed based in part on the forensic MTBE analysis presented.

Also provided expert input and ‘behind-the-scenes’ consultation on multiple other cases in this same action against the 5,500 retail gasoline station locations across New Jersey.

**Briggs v Southwestern Energy** – PA Supreme Court

Was accepted by the PA Supreme Court to participate on behalf of Southwestern as an *amicus* filer in the hearing of a Superior Court decision involving the 100 plus year old “Rule of Capture” principle pertaining to the migration of petroleum in subsurface environments. Was one of only two non-organization-related *amici* permitted to submit. *Amicus*  brief was one of only two cited by the Court in ultimate ruling which was in favor of Southwestern

**Higgins Farm Superfund Site, Plainsboro, NJ**

Represented Sun Oil Co in a Superfund-based third-party action by extant PRP Group. Case involved claims that a former spill on a gasoline pipeline adjacent to the Superfund Site contributed to groundwater contamination. Provided expert groundwater support, litigation support, expert report, deposition. Sun dismissed from case under summary judgement.

**Confidential Natural Gas Exploration and Development** – Pennsylvania

Current technical and regulatory expert for international natural gas exploration and development corporation in a stray natural gas litigation and compliance case.

**Anniston Army Ammunitions Depot, Anniston, AL** (Superfund Action).

As part of Pentagon Technical Assistance Team, represented US Department of the Army in Actions brought by USEPA. Contamination of groundwater and surface water by petroleum and chlorinated solvents. Provided expert hydrogeologic consulting and expert witness services in settlement discussions with EPA and AL DER. Resolved all issues pertaining to off-site contamination and prevented litigation under CERCLA

**Letterkenny Army Ammunitions Depot**, Chambersburg, PA (Superfund Action)

Same issues services and outcome as Anniston.

**Volunteer Munitions Manufacturing Facility**, Knoxville, TN. (Superfund Action)

Same issues, services and outcome as Anniston

**Independence Army Base**, Independence, MO. (Superfund Action)

Same issues, services and outcome as Anniston

**MAPFRE** Bayamon, PR

Represented current property owner in an action against a neighboring property for contamination from leaking underground gasoline/diesel tanks. Contaminant included typical gasoline and diesel constituents, including MTBE. Provided forensic analyses of existing data, additional field investigation, prepared expert reports and provided deposition testimony. Case settled.

**Northern Burlington School District** Burlington, NJ

Represented insurance carrier in a cost recovery action involving leaks from underground storage tanks and transport of MTBE and BTEX in groundwater to adjacent properties, wetlands and a stream. Provided forensic evaluation of existing data, prepared expert report and deposition testimony. Case settled prior to trial.

**Independent retail gasoline station**, Old Bridge, NJ

Represented insurance carrier in a cost recovery action involving groundwater contamination resulting from improperly installed underground storage tank which broke free of restraints, erupted from the ground and released gasoline. Conducted forensic evaluation, prepared expert report which was the basis of settlement negotiations for gasoline constituent contamination of groundwater, including MTBE.

**Mid-Monmouth Industries**, Eatontown, NJ

Represented insurance carrier in this cost recovery action pertaining to soil, groundwater and surface water contamination by petroleum constituents (including MTBE), arsenic, heavy metals and PCBs. Provided forensic analysis of existing data, new investigation, expert reports and support of settlement conferences.

**Multimatic Industries**, Paramus, NJ

Expert litigation support. Represented American International Group in a cost recovery action at an electronics manufactory. Contaminants included petroleum, chlorinated solvents, arsenic, heavy metals, in soil and groundwater. Expert report and settlement support resulted in favorable settlement for AIG.

**Fairfield Textiles**, Fairfield, NJ

Expert litigation support. Represented American International Group in a cost recovery action at a former textile plant. Contaminants included petroleum constituents and chlorinated solvents in soil and groundwater. Expert reports prepared but insurer (client ) assumed control of case – conducted the case and closure from that point onward.

**CertainTeed Corporation** – Cincinnati, Ohio

Represented CertainTeed Corp in a post-acquisition action against seller of property for groundwater contamination by petroleum. Had conducted pre-acquisition environmental assessment and identified issue. Action involved specifics of the investigation. Expert report used in settlement discussions.

**ILCO Superfund Site**, Leeds, AL

Represented a PRP group in a Superfund action at a secondary lead smelting facility which included a lead-acid battery recycling station. Soil and groundwater contamination by lead, cadmium, arsenic and other metals. Expert litigation support including defense against cost recovery claims. Representation at legal/regulatory negotiation. Case resolved with USEPA and AL DER

**Horsehead Industries/NJ Zinc**, Palmerton, PA

Represented insurance carrier in cost recovery action for multiple superfund sites in an action brought by ViaCom against Horsehead for contamination by zinc, arsenic and other metals in soil, groundwater and surface water. Prepared forensic evaluation and expert report, but case was settled before final issuance.

**Alpine Rose v Blue Mtn**, Kunkletown, PA

Principally a stormwater management case, this NIMBY case evolved into an all-issues case with implications of water supply impact, stream impacts, potential pollution claims, groundwater impacts and adverse impacts to T&E species. Represented a developer in a case heard by Pennsylvania’s Environmental Hearing Board – a state-level court established to try environmental cases. Prepared expert reports, re-designed aspects of the development, provided deposition and trial testimony. Ruling from EHB in favor of client was appealed to Commonwealth Court, which, based on expert reports presented, also ruled in client’s favor.

**Inflection Energy**, Williamsport, PA

Expert witness in a case involving challenges to natural gas development. Provided technical and regulatory analyses, expert reports, and testimony at PA Courts of Common Pleas, Commonwealth court and PA Supreme Court. Case was ultimately decided to the advantage of client’s concerns.

**Constellation Energy**, Ann-Arundel, Annapolis, MD

Represented a land development co-defendant in a former sand and gravel mine where coal fly ash had been deposited. Plaintiffs alleged groundwater contamination by arsenic derived from fly ash. Prepared forensic evaluation, expert report, deposition testimony. Case did not go to trial during my involvement

**Corporate Plaza**, Allentown, PA

Represented the City of Allentown in an action pertaining to the collapse of an office building into a sinkhole ostensibly caused by a water main break. Expert report fixed the cause on the foundation design of the building and the case was dropped prior to deposition.

**Borough of Hummelstown**, Hershey, PA

Represented an insurance carrier in a cost recovery for damage during flooding. Forensic analysis and expert report on cause of flooding.

**Trap Rock Industries**, Plainsboro, NJ

Represented quarry in an implication that its extraction of groundwater as part of aggregate mining operations cause a deflection in two plumes emanating from Superfund Site and from a 50-year old gasoline pipeline leak. Expert groundwater consultation, litigation support. Based on report, quarry was never formally implicated and allegations were dropped.

**Trap Rock Industries**, Lambertville, NJ

Represented Trap Rock in nuisance case brought by neighbors involving noise, dust, water supply impacts and potential for groundwater contamination. Preliminary trial results were complete at time of engagement. Prepared all expert evaluations as required by the court and eliminated all requirements. Prepared expert report and presented testimony at all local hearings following trial.

**Buzzi Unicem,** Cape Girardeau, MO

Represented Buzzi in a case in which sinkholes ostensibly caused by mining limestone from a quarry located only a quarter mile from the Mississippi River damaged local roads and infrastructure. Agreements based on expert work resulted in settlement without legal actions being brought.