



# HARVEY A. COHEN

Hydrogeologist

## AREAS OF EXPERTISE

- Contaminant Fate and Transport
- Water Resources Evaluations
- Brownfields Investigation/Remediation
- Risk-Based Corrective Action
- Environmental Database Management
- Litigation Support and Expert Testimony

## SUMMARY OF QUALIFICATIONS

Dr. Cohen provides quantitative evaluation of water resources and environmental contamination, including site investigation and remediation, brownfields redevelopment, risk-based corrective action, and groundwater modeling. Dr. Cohen has led water resources and geological investigations throughout the United States and in Turkey. For the United Nations Development Programme (UNDP), he completed the first-ever comprehensive environmental assessment of Cyprus' largest copper mining and mineral processing complex. Dr. Cohen has also served as an expert witness in cases related to groundwater contamination with MTBE and chlorinated solvents. In addition to his research and case-study publications, Dr. Cohen is co-editor of the American Geological Institute's *Geoscience Handbook* (AGI Datasheets, 4<sup>th</sup> Edition).

**YEARS OF EXPERIENCE: 15+**

### EDUCATION

**PhD**—Geological Sciences  
Princeton University, 1992  
**BA** (*cum laude*) – Geology  
Cornell University, 1985

### REGISTRATIONS

**Professional Geologist**  
Pennsylvania: PG003936  
Nebraska: G-0322  
**Registered Geologist**  
Missouri: 2004013522

### PROFESSIONAL HISTORY

**S.S. Papadopoulos & Associates, Inc.**  
1996 to present  
**Princeton University** – CLAAMP  
Laboratory, 1996  
**Royal Holloway University of London**  
1993 to 1996  
**Mobil Research & Development Corporation**  
1990  
**ICF Technology Inc.**  
1985 to 1987

## REPRESENTATIVE EXPERIENCE

**S.S. Papadopoulos & Associates, Inc.**, Bethesda, Maryland

- **Gasoline Contamination Litigation in Maryland**
  - **Jeff Alban et al. vs. ExxonMobil Corporation et al.** — Served as an expert witness, providing opinions on hydrogeologic aspects of a 26,000-gallon gasoline release in Jacksonville, MD. Contributed to the mapping and interpretation of groundwater contamination with benzene, MTBE and other gasoline-related contaminants.
  - **Jerilyn Allen et al. vs. ExxonMobil Corporation et al.** — Provided expert opinions on hydrogeology of the Jacksonville, MD area, and the extent and migration of contamination associated with a 26,000-gallon gasoline release in 2006.
  - **Santiago Ayala et al., vs. Citgo Petroleum Corporation et al.** — Provided expert opinions on the extent and physical properties of gasoline contamination associated with the Green Valley Citgo station in Monrovia, MD. Addressed mechanisms of impact to groundwater, properties of MTBE, and hydrogeology of the area.
- **New Jersey Department of Environmental Protection (NJDEP) vs. ExxonMobil Corporation et al.** — For the NJDEP evaluated the extent of groundwater contamination associated with historical operations by ExxonMobil, Kinder Morgan and GATX at the Paulsboro Terminal. Expert reports and testimony focused on MTBE migration from on-site sources and the extent (area, depth, and volume) of Natural Resource Damages.

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- **Confidential State Agency** – For a Natural Resources Damages Claim encompassing more than 20 defendants, provided technical support to the Plaintiffs in developing the scope of their case; collected, reviewed, produced and queried environmental data from state-wide and county databases; managed data in SQL Server, Access and legacy database formats.
- **Other Litigation and Mediation Support**
  - **Insurance Cost Recovery Cases for Clients including Koppers Company Inc.** — Evaluated the timing and extent of soil and groundwater contamination at coal-tar processing facilities in West Virginia, New Jersey, California, Massachusetts and Pennsylvania; at petroleum distribution terminals in Nevada, California, and Washington state, and a landfill in Kansas. Contaminants of concern included PAHs, BTEX, phenols, cresols, metals, organic solvents (including DNAPL) and petroleum (including LNAPL).
  - **Manufacturing Facility, Lake Charles, LA** — Investigated the migration of dichloroethane (1,2-DCA) and other chlorinated compounds from an industrial plant to an offsite residential community.
  - **U.S. Department of Justice** — Investigated the properties of jet fuel (JP-4) and created equilibrium models for the weathering of jet fuel hydrocarbons in the subsurface.
- **District of Columbia Water and Sewer Authority (DCWASA)** – As part of the Blue Plains Tunnel Combined Sewer Overflow Reduction project (Clean Rivers Project), worked with S.S. Papadopoulos in developing a dewatering plan for Deep Shaft construction; developed specifications for the dewatering project, oversaw well construction, 7-day aquifer test and analysis, developed final design for implementation in 2013/2014.
- **Pavilion, Wyoming** – For the Independent Petroleum Association of America, was the lead author in a comprehensive review of USEPA's draft report on groundwater contamination in the town of Pavilion Wyoming. Evaluated the geologic and geochemical evidence for a link between hydraulic fracturing activities and groundwater contamination. Determined that EPA key evidence for such a link was unreliable due to the lack of baseline and background data, severe problems with well construction and the natural conditions of the Wind River Basin, wherein the hydrocarbon-bearing zones occur within the same geologic unit as the aquifer of concern.
- **Maryland Department of Environment (MDE)** – Developed Source Water Protection Plans for eight (8) communities, ranging in population from fewer than 1,000 to almost 200,000 individuals, in Frederick, Carroll, Harford, Cecil and Anne Arundel Counties; updated Source Water Assessments, analyzed local hydrogeology, and working with the communities, provided recommendations for land use controls, public outreach, zoning modifications, local ordinances and funding sources to assist in source water protection.
- **Washington DC Depts. Of Health and Environment** — Conducted a Vapor Intrusion and Corrective Action Study of the Riggs Park neighborhood that is situated over a mixed groundwater plume of gasoline-related contaminants and PCE. Sampled ambient air, indoor air, sub-slab and soil vapor from 120 homes. Evaluated the resulting data set for evidence of vapor intrusion from the subsurface. Final deliverables included individualized reports to each homeowner, identification of homes recommended for remedial action, and proposed remedial actions to address vapor intrusion.
- **Brownfields Redevelopment for the Kansas City Port Authority, Missouri (1)** — Developed a detailed strategic plan for management of portions of the former Richards-Gebaur Air Force Base under Missouri's Voluntary Cleanup Program (VCP), MDNR's Federal Facilities Section, and the BRAC and FUDS programs. In conjunction with the USAF, USACE and site developers, worked on achieving closure and/or modified land use management to allow site redevelopment while preserving environmental protection.

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- **Brownfields Redevelopment for the Kansas City Port Authority, Missouri (2)** — Under Missouri's Voluntary Cleanup Program (VCP), investigated soil and groundwater contamination associated with former riverfront Manufactured Gas Plant (MGP) and pitch distillery. Utilized techniques including CPT and LIF ROST tool to define extent of contamination and to quantify volume of material for costing of excavation, disposal, and other remedial alternatives. Provided oversight, technical guidance, and interaction with MDNR's VCP during site remediation to facilitate site redevelopment.
- **U.S. Environmental Protection Agency (USEPA), Region V** — Evaluated the effectiveness of remediation activities at state-led Superfund (CERCLA) sites in Michigan, Illinois and Ohio. At former industrial sites and landfills that had soil and groundwater contamination (typically VOCs and/or chromium), mapped contaminants; evaluated groundwater capture, SVE system operation, feasibility of MNA as a remedial measure; and provided recommendations for optimizing remedial programs. Provided continuing technical support to EPA in oversight and negotiations with PRPs.
- **FAR-MAR-CO Subsite of the Hastings, Nebraska Superfund Site** — Provided ongoing technical oversight of the Interim Remedy for a plume of carbon tetrachloride and ethylene dibromide in groundwater. Shepherded development and implementation of the Final Remedy from Feasibility Study through Record of Decision (ROD). Worked with USPEA Region 7 in submission and approval of all work plans for direct-push groundwater investigation, monitoring well installations, ongoing pump-and-treat, and source-area remediation by enhanced biodegradation using emulsified vegetable oil as a substrate. Provided field oversight for all activities in the ROD Statement of Work.
- **Deer Creek Watershed Study, Susquehanna River Basin Commission (SRBC)** — Developed and executed a water availability study of the Deer Creek Watershed of Maryland and Pennsylvania. Compiled regional water-use and aquifer information, completed extensive stream-gaging in Deer Creek and its tributaries, oversaw development and utilization of a MODFLOW model of groundwater and surface-water interaction. Presented SRBC with a comprehensive analysis and projections of water availability, population growth until 2025, and allocatable resources using MDE permitting assumptions.
- **Alexandria Tech Center, Alexandria, VA** — Evaluated the causes of the flooding of Cameron Run and associated property damages from major storm events in 2006 and 2011. Analyzed past and current flood zone documentation, completed flood frequency calculations, and modified an existing HEC-RAS model to simulate impacts of recent sediment aggradation on predicted flood levels. The results of this investigation were cited by the US Army Corps of Engineers in their evaluations of the same flood events.
- **Maryland Department of Environment (MDE)** — Managed the Source Water Assessment (SWA) for more than 400 small public water systems in Baltimore and Cecil Counties, Maryland. More than 500 groundwater sources (wells) and hundreds of potential contaminant sources were identified, assigned GPS coordinates, and incorporated into county-wide GIS records. Water-quality data and groundwater conditions were evaluated for each system, based upon its hydrogeologic setting. For the smaller systems, regional susceptibility analyses were completed. For larger systems, individual susceptibility analyses were completed using MODFLOW models volumetric constraints and time-of-travel criteria.
- **Lefka-Xeros Mining Area, Northern Cyprus** — For the United Nations Development Programme (UNDP), completed a comprehensive environmental assessment of Cyprus' largest copper mining and mineral processing complex. Provided strategic guidance to the UN and local authorities regarding short-term risks and long-term remedial options. Prepared detailed specifications for investigations of groundwater, soil, surface water, sea water, mine tailings, stability of tailings ponds, and preservation of historical documents from the site.

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- **C-Aquifer, Arizona and New Mexico** — To evaluate the environmental impacts of a proposed well field in the arid southwest, managed development of a 3-D, transient groundwater flow model (using MODFLOW). Historical pumping, surface-water flows/diversions, and spring discharges were used as calibration targets with PEST, to ensure that the future pumping scenarios would adequately reflect aquifer behavior. Developed the conceptual model of water resource use, aquifer behavior historical trends, and managed the conversion of geologic and hydrogeologic inputs into digital form.
- **Waste Disposal Sites, University of Missouri-Columbia** — Under Missouri's voluntary Cleanup Program (VCP), investigated two former waste disposal areas containing organic and mixed organic-radioactive laboratory wastes. Achieved closure under Missouri's Risk-Based Corrective Action program.
- **Gasoline Release Site, University of Missouri-Columbia** — Managed the remediation of a subsurface gasoline release under Missouri's Tank Program with soil vapor extraction and groundwater containment. Achieved closure under Missouri's Risk-Based Corrective Action program.
- **Mediation Support - Confidential Client** — As consultant to party in mediation, evaluated over 40 facilities for history, timing, and magnitude of releases of contaminants to groundwater. Managed database of well, water quality, and facility history data for integration with groundwater flow and contaminant transport numerical models. Negotiated with contesting parties and regulatory agencies to identify participants and quantify their share of contribution to groundwater contamination.

## Princeton University- <sup>40</sup>Ar/<sup>39</sup>Ar Laboratory, Princeton, New Jersey

In collaboration with Exxon Production Research, studied the argon isotope systematics of detrital and diagenetic clays by using micro-encapsulation and laser step-heating techniques. Designed and constructed a new ultra-high vacuum (uhv) line for the laser-ablation and extraction of oxygen isotopes from groundwater and rock samples.

## Royal Holloway University of London (Sun Postdoctoral Fellowship), England

In affiliation with the Fault Dynamics Project (sponsored by ARCO, BP, Brasoil, Conoco, Mobil, and Sun), planned and conducted research into the origins, evolution, and three-dimensional structure of petroleum reservoirs.

## PROFESSIONAL SOCIETIES

Association of Groundwater Scientists and Engineers (AGWSE/NGWA)  
American Geophysical Union (AGU)  
Geological Society of America (GSA)

## AWARDS AND HONORS

Postdoctoral Fellowship, Royal Holloway University of London, 1992-1995  
Fellow of the Geological Society of London, 1992-1995  
Outstanding Student Research Proposal, Geological Society of America, Sedimentary Geology Division, 1989  
Meeker Fellowship, Department of Geological and Geophysical Sciences, Princeton University, 1988-1990  
Harry Hess First Year Prize, Department of Geological and Geophysical Sciences, Princeton University, 1987  
Chester Buchanan Memorial Prize, Department of Geology, Cornell University, 1985

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## APPOINTMENTS

- 2008 – present: External Advisory Committee, Department of Earth/Atmospheric Sciences, Cornell University
- 1999 – 2013: GeoRef Advisory Committee, American Geological Institute

## PUBLICATIONS AND PRESENTATIONS

- Papadopoulos, S.S., H. A. Cohen, and P. Khambhammettu. 2013. A Semi-Empirical Analytical Model for Designing an Aquifer Depressurization System. GSA Annual Meeting, Denver. Geological Society of America Abstracts with Programs. Vol. 45, No. 7, p.397
- Cohen, H.A., T. Parratt, and C.B. Andrews, 2013. Comment on "Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers", *Groundwater*. v. 51, pp. 317-319.
- Cohen, H.A. 2012. Groundwater Contamination from Hydraulic Fracturing – How Will We Know? GSA Annual Meeting, November 4-7, 2012. v. 44, no. 7. Charlotte: Geological Society of America. p. 520.
- Cohen, H.A. and N. Love, 2011. Investigation of Vapor Intrusion from an Urban Gasoline Plume in Washington DC Reveals Anomalous Behavior of Tetrachloroethylene (PCE). Groundwater: Cities, Suburbs, and Growth Areas – Remediating the Past and Managing for the Future – National Groundwater Association Meeting, August 8-9, Los Angeles.
- Cohen, H.A. and M. Karanovic, 2010. The Cameron Run Flood of June 25, 2006 – Hydrologic Response to Sediment Aggradation in a Flashy Urban Stream, northern Virginia. GSA Denver Annual Meeting, October 31 – November 3, 2010. Vol. 42, No. 5, p. 327. Denver: Geological Society of America. v. 18.
- Cohen, H.A., J. Choi, J. Hau, and J. Pippin, 2010. Geological Control of Baseflow in the Deer Creek Watershed, Lower Susquehanna River Basin, Pennsylvania and Maryland. Northeastern Section (45th Annual) and Southeastern Section (59th Annual) Joint Meeting (13-16 March 2010), Geological Society of America Abstracts with Programs, v. 42, no. 1, p. 107.
- Cohen, H.A. and M. Rafferty, 2010, The Former Richards-Gebaur Air Force Base, Kansas City – Strategies and Practice for Risk-Based Corrective Action (RBCA) and Closure of Contaminated Sites. Air Force Restoration and Technology Transfer Workshop, April 6-9, 2010, San Antonio, TX.
- Cohen, H.A., Susquehanna River Basin Commission, 2008, Deer Creek Water Availability Study. Publication no. 256, p. 84.
- Wilson, D.H., H. Cohen, M. Tonkin, and D. Dougherty, 2008, Superfund Remedies - Evaluating Vital Signs with U.S. EPA's Region 5 Groundwater Evaluation and Optimization System (GEOS). AFCEE Technology Transfer Conference, San Antonio, Texas, March 11-14, 2008.
- Cohen, H.A., M. Tonkin, D. Wilson, and D. Dougherty, 2007, A Systematic Data-Driven Approach to Evaluating Hydraulic Capture at Superfund Sites in USEPA Region 5. GSA Denver Annual Meeting, October 28-31, 2007. v. 39, no. 6. Denver: Geological Society of America.
- Cohen, H.A., 2007, Site Remediation - 2006 Annual Report. In *Environment, Energy, and Resources Law: 2006 The Year in Review*. M.E. Mansfield, editor. American Bar Association, pp. 101-102.
- Cohen, H.A., and C. Neville, 2006. Chapter 8: "Fate, Transport, and Modeling of Perchlorate in Groundwater." in *Perchlorate: A Scientific, Legal, and Economic Assessment*. (1st ed.). Hagstrom, E.L., editor. Tucson, AZ: Lawyers & Judges Publishing Company, pp. 267-294.

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- Walker, J.D., and H. Cohen, 2006. *The Geoscience Handbook: AGI Data Sheets* (4th ed.). Alexandria, VA: American Geological Institute, p. 302.
- Cohen, H.A. 2004. Groundwater Impacts from Five Millennia of Copper Mining -- The Lefka-Xeros Area of Cyprus. Presented at The Geological Society of America Annual Meeting & Exposition, Denver, Colorado, November 7-10, 2004. In *Abstracts with Programs - Geological Society of America*, v. 36, no. 5. Pp.567, 243-35, BTH 58.
- Cohen, H.A., and S. Cousins, 2003. Source Water Assessment of Small Public Water Systems in Baltimore County, MD - Maximizing GIS-Database Linkages for Effective Management. Maryland State-County Ground Water Symposium, September 25, Baltimore. In *Proceedings of the Maryland State-County Ground Water Symposium*, p. 6.
- Cohen, H.A., S. Cousins, J. Pippin, and N. Vollentine, 2003. Source Water Assessment of Small Public Water Systems in Baltimore County, Maryland: Preliminary Results. Association of Ground Water Scientists and Engineers (AGWSE) Annual Meeting, "Ground Water in Coastal Zones: Availability, Sustainability, and Protection," Orlando, FL, December 9-12. In *Proceedings of the Association of Ground Water Scientists and Engineers (AGWSE) Annual Meeting, Ground Water in Coastal Zones: Availability, Sustainability, and Protection*, pp. 19-20.
- Lolcama, J.L., H. Cohen, and M. Tonkin, 2002. Deep Karst Conduits, Flooding, and Sinkholes: Lessons for the Aggregates Industry. *Engineering Geology*, v. 65, no. 2-3, pp. 151-157.
- Cohen, H.A., 2001. Degradation of Chlorinated Solvents in Karst: Constraints and Examples from an Abandoned Landfill Plume. Presented at the Geological Society of America Annual Meeting, Boston, November 2001.
- Barka, A., H. Akyüz, H. Cohen, and F. Watchorn, 2000. Tectonic Evolution of the Niksar and Tasova-Erbaa Pull-Apart Basins, North Anatolian Fault Zone: Their Significance for the Motion of the Anatolian Block: *Tectonophysics*, v. 322, no. 3-4, pp. 243-244.
- Cohen, H.A., M. Tonkin, and C. Neville, 2000. Determination of Hydraulic Conductivity Distribution in a Heterogeneous Glacial Sand Aquifer: Correlation between Estimates Based on Impeller Flow Meter Data and Grain Size Distributions. Poster presentation at the Society for Sedimentary Geology/International Association of Sedimentologists Research Conference, Environmental Sedimentology: Hydrogeology of Sedimentary Aquifers, Santa Fe, New Mexico, Sept. 24-27, 2000.
- Lolcama, J.L., and H. Cohen, 1999. Sinkholes and Land Development: Planning to Avoid Costly Failure: *Land Development*, v. 11, no. 3, pp. 9-11.
- Lolcama, J.L., H. Cohen, and M. Tonkin, 1999. Deep Karst Conduits, Flooding, and Sinkholes: Lessons for the Aggregates Industry. Hydrogeology and Engineering Geology of Sinkholes and Karst--1999, *Proceedings of the Seventh Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst, Harrisburg / Hershey, Pennsylvania*, April 10-14, 1999.
- Lolcama, J.L., and H. Cohen, 1997. Karst Hydrogeology for the Aggregates Industry. Presentation to members of the Maryland Aggregate Association, June 11.
- Cohen, H.A., and S. Hardy, 1996. Numerical Modeling of Stratal Architectures Resulting from Differential Loading of a Mobile Substrate. In *Salt Tectonics*. Alsop, G., D. Blundell, and I. Davison, editors. Geological Society Special Publication 100pp. 265-273.
- Cohen, H.A., and K. McClay, 1996. Sedimentation and Shale Tectonics of the Northwestern Niger Delta Front: *Marine and Petroleum Geology*, v. 13, pp. 313-328.

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- Onstott, T.C., H. Cohen, C. Miller, and J. Golden, 1996. Applications for UV Laser Microprobe to  $^{40}\text{Ar}/^{39}\text{Ar}$  Dating of Fine-Grained Diagenetic Minerals. Presented at the American Geophysical Union Spring Meeting, Baltimore, May 20-24, 1996. In *Eos*, v. 77, p. 92.
- Cohen, H.A., 1995. Salt and Shale Tectonics in Continental Margin Settings. Presentation at the Structural Interpretation in Sedimentary Basins, Fault Dynamics Short Course, July 24-28, 1995.
- Cohen, H.A., C. Dart, H. Akyuz, and A. Barka, 1995. Syn-Rift Sedimentation and Structural Development of the Gediz and Buyuk Menderes Graben, Western Turkey: *Journal of the Geological Society of London*, v. 152, pp. 629-638.
- Cohen, H.A., C. Hall, and N. Lundberg, 1995.  $^{40}\text{Ar}/^{39}\text{Ar}$  Dating of Detrital Grains Constrains the Provenance and Stratigraphy of the Seymour Canal Formation, Gravina Belt, Southeastern Alaska: *Journal of Geology*, v. 103, pp. 327-337.
- Cohen, H.A., F. Watchorn, H. Akyuz, and A. Barka, 1995. Sedimentation Patterns in the Niksar and Erbaa-Tasova Pull-Apart Basins, North Anatolian Fault Zone, Turkey. Presentation at the American Association of Petroleum Geologists Annual Meeting, Houston, March 5-8, 1995.
- Dart, C.J., H. Cohen, H. Akyuz, and A. Barka, 1995. Basinward Migrating Rift Border Faults: Implications for Facies Distribution and Preservation Potential. *Geology*, v. 23, pp. 69-72.
- Cohen, H.A. 1994. Counter-Regional Faulting in Response to Salt and Shale Tectonics: Examples from the Gulf of Mexico and Western Africa. Presentation at the Fault Dynamics Project Workshop, Egham, England, March 28-30, 1994.
- Cohen, H.A., and S. Hardy, 1994. Differential Loading of Mobile Substrates: Constraints from Nature and Computer Modeling. Presentation at the Fault Dynamics Project Workshop, Egham, England, March 28-30, 1994.
- Cohen, H.A., C. Dart, H. Akyuz, and A. Barka, 1994. Structural Development of the Gediz and Buyuk Menderes Graben, Western Turkey: Effect of Basinward Migration of Faulting on Half-Graben Sedimentation. Presentation at the American Association of Petroleum Geologists Annual Meeting, June 12-15, 1994, Denver, Colorado.
- Hardy, S., and H.A. Cohen, 1994. Numerical Modeling of the Effect of Delta-Induced Differential Loading on a Mobile Substrate. Presentation at the Salt Tectonics Meeting of the Petroleum Group of the Geological Society, London, September 14-15, 1994.
- Cohen, H.A., F. Watchorn, H. Akyuz, and A. Barka, 1994. Plio-Pleistocene Sedimentation in the Erbaa-Tasova and Niksar Strike-Slip Basins, North Anatolian Fault Zone, Turkey. British Sedimentological Research Group, Geological Society of London Annual Meeting, December 18-20, 1994.
- Cohen, H.A., R. Cumbest, and T. Onstott, 1993. Alumina Ceramic as a Mounting Medium for Electron Microprobe Analysis and  $^{40}\text{Ar}/^{39}\text{Ar}$  Laser Microprobe Dating of Mineral Grains: *Chemical Geology*, v. 106, no. 3-4, pp. 443-452.
- Cohen, H.A., and N. Lundberg, 1993. Detrital Record of the Gravina Arc, Southeast Alaska: Petrology and Provenance of Seymour Canal Formation Sandstones: *Geological Society of America Bulletin*, v. 105, pp. 1400-1414.
- Cohen, H.A., and K. McClay, 1993. Shale Tectonics and Sedimentation on the Northwestern Niger Delta Front. Presentation at the Geological Society of America Annual Meeting, Boston, October 1993.
- Cohen, H.A., 1992. Stratigraphic, Sedimentologic, and Provenance Constraints on Evolution of the Gravina Belt, Northern Southeast Alaska. PhD Dissertation, Princeton University, 275 p.

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- Cohen, H.A., R. Cumbest, and T. Onstott, 1992. Alumina Ceramic Adhesive as a Mounting Medium for Microprobe Analysis, Irradiation, and  $^{40}\text{Ar}/^{39}\text{Ar}$  Laser Dating of Loose Mineral Grains. Presentation at the American Geophysical Union 1992 Spring Meeting, Montreal, Canada, May 12-16, 1992. In *Eos*, v. 73, no. 14, Supplement, p. 364.
- Hanger, R.A., and H. Cohen, 1992. Reworked *Cleiothyridina sp.* in the Seymour Canal Formation (Jurassic-Cretaceous), Southeastern Alaska. *Paleobios*, v. 14, pp. 1-2.
- Cohen, H.A., N. Macleod, and N. Lundberg, 1991. Cretaceous Chert Clasts in the Gravina Belt, Southeast Alaska: Evidence for a Contemporaneous Oceanic Source Terrane. Presentation at the Geological Society of America Annual Meeting, San Diego, CA, November 1991.
- Cohen, H.A., and N. Lundberg, 1990. Jura-Cretaceous Sedimentation on the Eastern Slope of the Wrangellian Microcontinent: Lithofacies of the Seymour Canal Formation, Gravina Belt of Northern Southeast Alaska. Presentation at the Geological Society of America, Cordilleran Section, 86th Annual Meeting, Tucson, Arizona, March 14-16, 1990. In *Abstracts with Programs - Geological Society of America*, v. 22, no. 3, p. 3.
- Cohen, H.A., and N. Lundberg, 1990. Sandstone Petrology of the Seymour Canal Formation (Gravina-Nutzotin Belt): Implications for the Accretion History of Southeast Alaska. Presentation at the Geological Society of America Annual Meeting, Denver, CO, October 1990.
- Cohen, H.A., T. Onstott, N. Lundberg, and C. Hall, 1990.  $^{40}\text{Ar}/^{39}\text{Ar}$  Laser Probe Dating of Detrital Phenocrysts to Constrain the Age of Volcanism, Gravina Belt, Southeast Alaska. Presentation at the American Geophysical Union 1990 Fall Meeting, San Francisco, CA, December 3-7, 1990. In *Eos*, v. 71, no. 43, p. 1617.
- Cohen, H.A., and A. Gibbs, 1989. Is the Equatorial Atlantic Discordant? *Precambrian Research*, v. 42 pp. 353-369.

## DEPOSITION AND TESTIMONY EXPERIENCE

### DEPOSITIONS

- 2014 Jerilyn Allen et al. vs. ExxonMobil Corporation et al. Circuit Court of the State of Maryland, County of Baltimore. No. 03-C-11-008536. April 9.
- 2014 New Jersey Department of Environmental Protection et al. vs. Exxon Mobil Corporation f/k/a Exxon Corporation and Kinder Morgan Liquids Terminals, LLC a/k/a GATX Terminals Corporation. Superior Court of New Jersey. No. GLO-L-1063-07. February 20.
- 2010 New Jersey Department of Environmental Protection et al. vs. Exxon Mobil Corporation f/k/a Exxon Corporation and Kinder Morgan Liquids Terminals, LLC a/k/a GATX Terminals Corporation. Superior Court of New Jersey. No. GLO-L-1063-07. August 27.
- 2009 Morrison Enterprises and the City of Hastings, Nebraska vs. Dravo Corporation. U.S. District Court for the District of Nebraska. No. 4:08-CV-3142. July 24.
- 2008 Jeff Alban et al. vs. ExxonMobil Corporation et al. Circuit Court of the State of Maryland, County of Baltimore. No. 03-C-06-010932. August 21.

### TESTIMONY

- 2008 Jeff Alban et al. vs. ExxonMobil Corporation et al. Circuit Court of the State of Maryland, County of Baltimore. 03-C-06-010932. October 16.