STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of Alternating Current Transmission Upgrades – Comparative Proceeding	Case No.: 13-E-0488
In the Matter of North America Transmission Article VII Application	Case No.: 13-T-0454
In the Matter of NextEra Energy Transmission New York Article VII Application	Case No. 13-T-0455
In the Matter of New York Transmission Owners Article VII Application	Case No. 13-M-0457
In the Matter of Boundless Energy NE, LLC Article VII Application	Case No. 13-T-0461

FIRST APPLICATION FOR INTERVENOR FUNDING BY
FARMERS & FAMILIES FOR LIVINGSTON

Farmers & Families For Livingston ("FFL") hereby submits this first application for Article VII Intervenor Funds in this comparative proceeding ("First Application for Intervenor Funding") in accordance with 16 NYCRR § 85-2.4 and the December 6, 2013 Further Notice of Availability of Intervenor Funding.

FFL addresses below each requirement of 16 NYCRR § 85-2.4(d) as completely as possible at this time, given that these proceedings are in their early stages. FFL reserves its rights to supplement this First Application for Intervenor Funding as additional information becomes available or as otherwise required or appropriate.

1. Statement of the Number of Persons and Nature of Interests

FFL is an unincorporated association comprised of approximately 300 landowners and residents affected by the proposed Alternating Current Transmission Upgrades (the "Upgrades"). FFL was formed for the purpose of perfoming outreach to the Livingston community and other communities and stakeholders; coordinating outreach with applicants and regulatory agencies; collecting and distributing data and information concerning local agricultural, historic,

environmental and other important resources in and around the Town of Livingston, Columbia County.

Livingston has 3,646 residents and 889 families within 39.5 square miles. 21% are over the age of 65 and have lived in Livingston most of their lives. Per capita income is $22,434. Main occupations are agriculture, construction, truck driving and healthcare. There are many historic homes and properties as befits one of the original towns in the County. The land grant for Livingston was made in 1686 to Robert Livingston. The region was made a district in 1772 and the Town was founded in 1788.

FFL was also formed to provide a collective and unified voice for landowners and residents of the Town of Livingston in order to engage in public participation and develop a more robust and complete record in connection with the proposed Upgrades.

As set forth in detail below, members of FFL own farms and/or property and structures, many of them historic and ecologically sensitive, that would be directly impacted by the proposed Upgrades, specifically by the North America, Next Era Energy and New York Transmission Owners proposals. Several of these farms and properties are already impacted by the existing transmission corridor through the Town of Livingston and may be further significantly impacted by the proposed upgrades.

FFL intends to contribute to the further development of the record through the employment of expert witnesses, consultants and other advisors to develop and introduce additional data and information pertaining to local agricultural, historic, environmental, and other resources in and around the Town of Livingston, as well as the potential impacts and effects on those resources and on affected landowners and residents in the Town of Livingston.

2. Statement of the Availability of Funds From the Resources of the Requesting Party and From Other Sources and of the Efforts That Have Been Made to Obtain Such Funds

FFL is an unincorporated association comprised of farmers and property owners who have begun fundraising but whose available resources are limited and alone are insufficient to engage expert witnesses, consultants and advisors to perform a proper and thorough review of this technically complex, geographically dispersed, multi-party proceeding, and to contribute to the further development of the record in these proceedings. FFL is not aware of any other available funding sources though it will continue to raise funds and explore other potential funding sources. FFL therefore seeks intervenor funding pursuant to 16 NYCRR § 85-2.4 to defray the costs and expenses of engaging the necessary expert witnesses, consultants and

advisors to assist FFL in reviewing and evaluating the proposed Upgrades and contributing to a more complete record in these proceedings.

3. Owners or Occupants of Real Property and Location of Such Real Property in Relation to the Route Proposed for the Facilities and Any Alternative Route

While it is too early to know exactly the location of real property that may be adversely impacted, the following property owners along with section, block and lot numbers are believed to be in the path of at least one proposed transmission line:

Adventist Home, PO Box 218, Livingston, NY 1254; 104600. 160.-1-31; nursing home

Judy Alvarez, 45 Jacqueline Rd, Hudson, NY 12534; 104600. 141.-1-28; Home

Peter Andrews, PO Box 41, Livingston, NY 12541;104600. 82.-1-220
John Alvarez II, 45 Jacqueline Rd., Hudson, NY 12534; 104600. 141.-1-12.111

John D. Alvarez, 45 Jacqueline Rd., Hudson, NY 12534; 104600. 141.-1-30

Thomas and Karen Alvarez, 30 Bells Pond Rd., Hudson, NY 12534; 104600. 141.-1-1. Home

Thomas and Trisha Alvarez, 19 Jacqueline Rd., Hudson, NY 12534; 104600. 141.-1-29

Patricia Beckerle, 1610 County Rte 8, 1610 County Rte 8, Germantown, NY 12526; 104600. 181.-1-11

Alfred and Elaine Blanchard Jr., Deerhaven Rd., Elizaville, NY 12523; 104600. 182.-1-6166

Linda and Ronald Broast, 196 Rte 19, Elizaville, NY 12523; 104600. 181.-1-8

Camp Eagle Hill Inc., Box 12, Elizaville, NY 12523; 104600. 193.-1-2

Derrick Conte, 993 County Rte 10, Hudson, NY 12534;104600. 160.-1-5.112

Peter and Kathleen Corbett, 15 Jacqueline Rd., Hudson, NY 12534; 104600. 141.-1-12.112. Home

John Czajka. PO Box 76, Livingston, NY 12541;104600. 171.-1-39

Kay Dalton, 774 County Rte 19 # 15B, Elizaville, NY. 12523; 104600. 181.-1-54

Thomas Davis, 114 Bells Pond Rd., Hudson, NY 12534; 104600. 140.-1-37.200

Eugene Davison. 4300 Sound Ave., Mattituck, NY 11952; 104600. 160.-1-64

Paul DeCrosta, 132 Bells Pond Rd., Hudson, NY 12534; 104600. 140.-1-37.100

Andrew Dirienzo, 111Weaver Rd., Elizaville, NY 12523; 104600. 93.-1-11

Robt. And Kathy Dunn, 2019 County Rte 8, Elizaville, NY. 12523; 104600. 182.-1-43

Eva Egan. 3808 Sulgrave Dr., Alexandria, VA 22309; 104600. 182.-1-22. Land

Robert and James Egan Jr., 153 Riversedge Dr., Atlanta, GA 30339; 104600. 182.-1-11.112

Robert and James Egan Jr., 2401 Pennsylvania Ave. NW Ste 704 Washington, DC 20037; 104600. 182.-1-11.121

Robert F. Egan, 2401 Pennsylvania Ave. NW. Ste 704, Washington, DC. 20037; 104600. 182.-1-11.111

Robert F. Egan, 2401 Pennsylvania Ave. NW Ste 704, Washington, DC. 20037; 104600. 182.-1-11.200

Robert F. Egan, 2401 Pennsylvania Ave. NW Ste 704, Washington, DC 20037; 104600. 182.-1-50

Elizaville Brookhaven Properties, 19 Overland Rd., Wappingers Falls, NY. 12590; 104600. 182.-1-32.200

FH Stickles and Sons, PO Box 600, Livingston, NY 12541; 104600. 170.-2-2

Guy E. Fanning Sr., 241 Blackbridge Rd., Elizaville, NY 12523; 104600. 182.-1-1.112

Thomas Damiano, 4 Rittenhouse Rd., Bronxville, NY 10708; 104600. 161.-1-5.211

Warren Dierkes, 720 Church Rd., Hudson, NY 12534; 104600. 161.-1-50.110, 161.-60.100

Stephen Estok Jr., 271 Rte 82, Hudson, NY 12534; 104600. 151.-1-66

Michael Fitzgerald, 190 Lockwood Rd., Hudson, NY 12534; 104600. 171.-1-85

Calvin Harkins, 106 Scuderhook Rd., Hudson, NY 12534; 103600. 171.-1-20.100

Charles Harkins, 51 Concord Dr., Mahopac, NY 10541; 104600. 171.-1-62

Hidden Meadow Farms, 5 Anne Place, Valhalla, NY 10595; 104600. 161.-1-21.11

Ferdinando Iorfida, 21-26. 74 St., Flushing, NY 11370; 104600. 161.-1-87

Arthur Kilmer, Sr. PO Box 174, Livingston, NY 12541; 104600. 182.-1-1.210

Stephen Kindya, 1/2 Marge Ln., Calverton, NY 11933; 104600. 182.-1-7

Lisa Klee, 315 Battlefield Rd., Red Hook, NY 12571; 104600. 171.-1-56

Margaret Doerr, PO Box 563, Saugerties, NY 12477; 104600. 182.-1-21

Stephen D. Pheiffer Jr., 235 Black Bridge Rd., Elizaville, NY 12523; 104600. 182.-1-11.122

Daniela and Michael Salcau, 42-05 48 St. Apt. 6G, Woodside, NY 11377; 104600. 161.-1-72

Whitestone Acres, 163-41 16th Ave., Whitestone, N Y 11357; 103600. 171.-1-36.112

Eileen Yandik, 269 Schneider Rd, Hudson, NY 12534; 104600. 151.-1-59. Home

Andrew Yurista, 17 Partridge Rd., Hudson, NY 12534; 104600. 161.-1-88

Lynn Fleming, 121Maple Ln., Hudson, NY 12534; 104600. 170.-2-.7, 170.-2-16.1

Christian Frei, 35 Mount Morris Park West, New York, NY 10027; 104600. 182.-1-30

Robert Garthe, 93 Atlantic St., Jersey City, NJ 07304; 104600. 160.-1-30, 160.-1-55

James Glomb. PO Box 224, Red Hook, NY 12571; 104600. 182.-1-40.1

Seventh Day Adventist, Livingston, NY 12541; 104600. 160.-1-34

James Greene, 247 Black Bridge Rd., Elizaville, NY 12523; 104600. 182.-1-1.120

James Guzzi, 41 Danski Rd., Hudson, NY 12534; 104600. 150.-1-7.120, 150.-30.100, 150.-1-29.211

Jodie Jacque, 1091 CR 10, Hudson, NY 12534; 104600. 160.-1-61

Katherine Jankovich, 163 Stonehenge Terr., Clark, NJ 07066; 104600. 160.-1-41

James Joseph, 153 Madison Ave., New York, NY 10016; 104600. 160.-1-35

Bernhardt Karp, 311 County Rte 31, Hudson, NY 12534; 104600. 139.-1-14.200 ,

139.-1-14.120, 139.-1-70

Farooq Kathwari, Premium Point, New Rochelle, NY 10801; 104600. 139.-1-41

Pamela Kline, PO Box 478, Claverack, NY 12513; 104600. 151.-1-67, 152.-1-14.112

Edward Krupa. 2612 Rte 8, Elizaville, NY 12523; 104600. 182.-1-46

Charles Lippert, 215-39 26 Ave., Bayside, NY 11360; 104600. 139.-1-57, 139.-1-67

Thomas Lozier, 106 White Oak Rd., Elizaville, NY 12523; 104600. 192.-1-33

Maple Lane Assoc., 107 Law Rd., Briarcliff Manor, NY 10510; 104600. 181.-1-1

Lorene Martens, 2719 Rte 9, Hudson, NY 12534; 104600. 160.-1-37

Salvatore Masi, 90 Hawthorne Ave., Floral Park, NY 11001; 104600. 201.-1-1.111

Thomas Masterson, 289 Cold Spring Rd., Hudson, NY 12534; 104600. 150.-1-30 .200

MCR Sand and Gravel, 179 Waterbury Hill Rd., Lagrangeville, NY 12540; 104600. 171.-1-10.111

James Meddaugh, 159 Deer Run Rd., Red Hook, NY 12571; 104600. 192.-1-42

Nancy Myers. 1960 Rte 9, Germantown, NY 12526; 104600. 181.-1-28, 201.-1-3.210, 201.-1-33.1

Francis Nolan, 201 W 85 St. Apt. 10C, New York, NY 10024; 104600. 152.-1-1

Steve Olah, 359 County Rte 10, Germantown, NY 12526; 104600 . 170.-1-40

Old Mud Creek Farm, 67 Pinewood Rd., Hudson, NY 12534; 104600. 150.-1-49, 150.-1-50

Brian Parlman, 81Blue Valley Rd., Hudson, NY 12534; 104600. 130.-1-54

Steve Paszko. 1880 Rte 8, Elizaville, NY 12523; 104600. 181.-1-20, 181.-1-21

Gordon Region, 1511 County Rte 8, Germantown, NY 12526; 104600. 170.-1-45.2

Paul Robertson, 7 Jacqueline Rd., Hudson, NY 12534; 104600. 141.-1-12.120

David Rockefeller, 3151 Rte 9, Hudson, NY 12534; 104600. 160.-1-42.100

George Saulpaugh, 1790 Rte 9, Germantown, NY 12524; 104600 192.-1-1, 192.-1-10.100, 192.-1-8

Paul Savareze, 15. 5th St., Hudson, NY 12534; 104600. 160.-1-5.111

Alfred Scott, 655 Park Ave., New York, NY 10065; 104600. 151.-1-10, 151.-1-68
.
Craig Setari, 241 Cold Spring Rd., Hudson, NY 12524; 104600. 150.-1-7.110

Robert Shapiro, 950 Rte. 19, Elizaville, NY 12523 ; 104600. 181.-1-29

Stickles and Son, PO Box 600, Livingston, NY 12531; 104600. 171.-1-10.200, 160.-1-54

Andrea Tranchita, 156 Bells Pond Rd., Hudson, NY 12534; 104600. 140.-1-36

Triform Enterprizez, 20 Triform Rd., Hudson, NY 12534; 104600. 141.-1-3.

Felicia Webber, PO Box 174, Livingston, NY 12534; 104600. 170.-2-6-122

Beverly Weckesser, 2719 State Rte 8, Hudson, NY 12534; 104600. 160.-1 -38

Steven Williams, PO Box 164, Elizaville, NY 12523; 104600. 201-1-41-110

Stephen Yandik, 269 Schneider Rd., Claverack, NY; 104600. 151.-1-38

William Yasinaki, RR4 Hudson, NY 12524; 104600. 141.-1-2-200

4. Amount of Funds Being Sought

FFL respectfully requests in this First Application for Intervenor Funding $266,795 for fees expected to be incurred by the following organizations or individuals:

ALTERECHO (A TechLaw Division) – potential environmental impacts --	$158,450
Computer Terrain Mapping – viewshed mapping and analysis --	$ 11,520
Larson Fischer Associates, Inc. – historic preservation --	$ 8,000
Daniel P. Duthie, Esq. – legal and management services --	$ 88,825

FFL continues to investigate and interview other possible consultants and advisors, including but not limited to potential electrical transmission experts to assist FFL in evaluating and understanding the proposed Upgrades. FFL therefore reserves its rights to supplement this First Application for Intervenor Funding as required or appropriate, and or to submit a Second Application for Intervenor Funding.

5. Name and Qualifications of Each Expert to be Employed

Curriculum vitae from the above are found in Appendices A (ALTERECHO), B (CTM), C (Larson) and D (Duthie).

6. The Name of Any Other Party Who May, or is Intending to, Employ Such Expert

FFL is aware that the Town of Milan will be engaging the services of Mr. Duthie and therefore, the fee request for his services here reflects the anticipated sharing of costs for certain activities in connection with these proceedings. For example, a key issue in all Article VII proceedings is whether the project is needed. While the Governor's Energy Highway Plan sets forth a need of at least an additional 1,000 MW of transfer capacity to mitigate congestion on the Central-East constraint, that requirement must be tested to see if there is still a real need in view of other projects that have been proposed, enhanced energy efficiency and demand side management programs, along with potential new or re-powered generating stations to the east of the Central-East and South of the UPNY-SENY constraint. The issue of need is common to both FFL and the Town of Milan,

FFL understands the potential benefits, efficiencies, and economies that might be realized if other parties intend to employ these professionals, and FFL remains ready and willing to coordinate and cooperate, to the extent feasible and practical, with other parties relative to professionals proposed to be employed by FFL.

7. Detailed Statement of the Services to be Provided by Expert Witnesses, Consultants or Others

Proposals describing the services to be provided are found in Appendices E (ALTERECHO), F (CTM), G (Larson) and H (Duthie).

8. Statement as to the Result of any Effort Made to Encourage the Applicant to Perform Any Proposed Studies or Evaluations and the Reason it is Believed That an Independent Study is Necessary

FFL was recently organized, and is still in the early stages of its outreach efforts involving the farmers and families of the Town of Livingston, the applicants, and other

stakeholders in these proceedings. At this time FFL has undertaken no formal effort to encourage the applicants to perform the required studies that FFL proposes, but remains open to negotiations with applicants concerning the performance of the necessary studies and evaluations proposed or that may be proposed by FFL.

Independent study by FFL and its consultants and advisors is necessary to augment the record with detailed data and information concerning specific local agricultural, historic, environmental, and other resources in and around the Town of Livingston that may be unknown to the applicants and their consultants. The scope of the proposed Upgrades and their potential impacts and effects on those resources and on affected farms, farmers, landowners and residents in the Town of Livingston requires immediate evaluation given that the deadline to submit comments on scoping statements, a most critical part of the review process for FFL, will expire February 21, 2014. FFL does not anticipate that it could negotiate approriate arrangements with the applicants to perform the necessary studies and evaluations to inform and advise FFL concerning the Upgrades and the potential impacts thereof by February 21, 2014.

9. Contracts or Agreements or Proposed Contracts or Agreements with Each Expert Witness, Consultant or Other Person

The proposed contracts with ALTERECHO, CTM and Larson will take the form of an acceptance of the proposal by FFL. Mr. Duthie's engagement letter is attached as Appendix H.

Conclusion

For the above reasons, FFL respectfully requests intervenor funding in the amount of $266,795 in order to engage necessary expert witnesses, consultants and advisors to assist FFL in reviewing and evaluating the proposed Upgrades, contributing to a more complete record, and participating in these proceedings. FFL reserves its right to supplement this First Application for Intervenor Funding as required or appropriate.

December 12, 2013

Respectfully submitted,

Pamela Kline

_____

Pamela Kline
Farmers and Families for Livingston
PO Box 478
Claverack, NY 12513
Tele: 518-851-7845
Cell: 518-965-8051
e-mail: tpklinee@verizon.net

cc: Parties List
Daniel P. Duthie, Esq.

APPENDIX A
CURRICULA VITAE OF ALTERECHO

Travis Kline

PROFESSIONAL EXPERIENCE	Total Years' Experience: 20 Years' Experience Supporting EPA contracts: Years with TechLaw: 16
EDUCATION	M.E.M., Environmental Toxicology, Duke University B.A., Cellular Biology/Genetics, Colby College

QUALIFICATIONS

20 years of risk assessment experience focused on human health

Nationwide experience in planning for defensible sampling and assessing data usability

Authored more than 50 documents related to risk assessment

Mr. Kline is TechLaw's primary point of contact for program risk assessment support. He provides enforcement negotiation, risk management support and program support to EPA under the REPA, ROC, ESAT, START and state contracts. He has 18 years of experience managing human health and ecological risk assessments under the auspices of RCRA, CERCLA, SDWA, TSCA, CAA, CA DTSC, OEHHA, CA RWQCBs, and other tribal, federal, state and local regulatory programs. His project experience includes site-specific chemical and radionuclide risk assessment and toxicological review at RCRA and CERCLA CA sites, DOD, DOE, and private industrial facilities. He has provided technical review and oversight of risk assessments and RBCA at hundreds of facilities nationwide, and has specialized expertise in the assessment of heavy metals such as mercury, PCDD/PCDF, PAH and PCB exposures.

Mr. Kline has nationwide experience in planning for defensible sampling, and assessing data usability and integrity to support human health and ecological exposure as well as the fate and transport of contaminants in environmental systems. He has performed these activities under various state and EPA RCRA and CERCLA support contracts including ROC, REPA, and ESAT. Fundamental to the development or technical review of risk assessment reports, data defensibility, usability and integrity are aspects of the risk assessment process considered by Mr. Kline on a routine basis. He has provided training and expert panel support on each of these topics as they relate to risk assessment and the disciplines data and informational needs.

Mr. Kline has recently focused on technical development and expression of risk at hazardous waste combustion units and indoor air exposures predicated on potential vapor intrusion. He has significant experience in the development of site-specific PRGs and risk-based screening and cleanup criteria for soil, groundwater, surface water, and sediment; analytical data evaluation; and contaminant fate and transport. He has also provided toxicological litigation support, specifically in the establishment of symptomatology and causation, and the etiological review of toxicants. He has designed and implemented sampling and analysis programs to elucidate the fate and transport of toxic chemicals in air, water, and biological systems. Mr. Kline's background also includes extensive public outreach support through numerous presentations, and development and presentation of guidance and training programs. He has authored more than 50 documents related to risk assessment and he has provided expertise for publications, panel reviews and conference presentations.

Mr. Kline Is TechLaw's primary POC for the firm's ongoing risk assessment support with the Kansas Department of Health and Environment (KDHE), Bureau of Remediation (BER). Under this contract, TechLaw provides risk assessment technical support to KDHE in the review of

RCRA investigations and remediation activities at six petrochemical refineries, including the 900-acre National Cooperative Refinery Association (NRCA) refinery in McPherson, KS. TechLaw has provided technical oversight and negotiation support at this facility for the past six years and is in a second, follow-on contract. During this time, Mr. Kline has provided senior technical review and management for multiple and concurrent technical document reviews for human health and ecological risk assessments at the Refinery, including evaluations to support 36 individual SWMUs and eight AOCs. Primary contaminants include BTEX compounds and polynuclear aromatic hydrocarbons (PAHs). Helped to define the sampling strategies to characterize the nature and extent of contamination, addressed data gaps to support exposure evaluations for discrete exposed or potentially exposed on- and off-site populations; derivation of exposure point concentrations; identification or evaluation of site-specific exposure parameter values; data grouping to define exposure areas; identification of legally enforceable and transferable institutional or land-use controls to mitigate or preclude specific exposures; statistical evaluations to differentiate between site-associated and naturally occurring non-anthropogenic inorganic concentrations; and state-of-the science exposure assessments.

Examples of his experience in areas of risk assessment include the following sites:

- EPA Region 2, Multi-pathway Combustion HHRA, Eastman Kodak Company, Rochester, NY. Eastman Kodak Company – Kodak Park is the largest photographic product manufacturing facility in the world and the largest industrial complex in the nation. Potential threats and contaminants identified at this facility include elevated levels of metals, volatile and semi-volatile organics in the soil, and groundwater contaminated primarily with VOCs, although other constituents have been identified. Was the primary author of the multi-faceted incinerator/combustion human health risk assessment. Detailed the process and fugitive emissions of the site, and also reviewed the destruction and removal efficiency (DRE). Provided complex volatile and particulate air dispersion and deposition modeling, as well as food chain effects, and bioaccumulation and bioconcentration studies. Other studies included residential, commercial/industrial and recreational population exposures, which were inclusive of fish consumption studies, breast milk, and fetal exposure studies. Focused on products of incomplete combustion, dioxin/furans, PAHs, and metals, such as mercury. Project was valued at $500K.

- EPA Region 2, Multiple HHRAs, HOVENSA/Hess Oil, LLC, St. Croix, U.S. VI. As human health risk assessor, supported site risk-management negotiations with supplementary human health and ecological risk evaluations and technical oversight of HOVENSA's facility-wide groundwater and hydrocarbon recovery systems (phase-separated, dissolved), which the facility has been operating, as required under its 1999 operating permit. Also evaluated direct and indirect contact exposures to on- and off-site populations. Performed evaluations of off-site migrations and impact to Caribbean Sea. From the facility's underground oil plumes, more than 40 million gallons of fugitive oil releases have been successfully reclaimed from groundwater. Evaluated 28 solid waste management and HW operating units. Support also included the development of site-specific health-based screening and monitoring criteria for PAHs, metals, VOCs, and SVOCs. Under this $300k project, addressed the following regulations: RCRA, CERCLA, TSCA, CWA, and CAA.

- EPA Region 5, Quantitative Exposure Assessment Sensitivity Analysis, Dow Chemical, Midland, MI — As the Project Coordinator and Senior Risk Assessor, supported EPA at the Dow facility, a 1,900-acre chemical manufacturing plant. Past waste disposal practices, fugitive emissions, and incineration at Dow have resulted in on- and off-site contamination. Contaminants

of concern include dioxins and furans, chlorobenzenes, heavy metals, and other byproduct materials resulting from the manufacture of chlorine-based products and other chemicals. Developed quantitative sensitivity analysis and technical memoranda to define the impact of individual exposure and intake parameters in the estimation of projected carcinogenic risk and development of cleanup criteria. Sensitivity analysis considers routine soil sediment, groundwater, surface water, and air exposures under agricultural, residential, industrial, and recreational land uses. Additional exposure pathways consider infant exposure during breastfeeding and bioaccumulation due to ingestion of fish, deer, turkey, and squirrel within the Tittabawassee River floodplain. Sensitivity analysis utilizes University of Michigan Dioxin Exposure Studies that characterize the local populace and demographics. "Evergreen" quantitative spreadsheets will allow EPA to update the exposure and sensitivity assessment as new information becomes available. Document was used in a negotiated settlement with Dow Chemical. On July 13, 2007, EPA reached agreement with Dow to clean up three dioxin-contaminated hotspots on the Tittabawassee River downstream of the Midland facility. The terms of these administrative consent orders have been finalized.

- Has managed numerous risk assessment review projects within EPA Region 1 that addressed non-polar hydrophobic contaminants, including PCBs in riverine systems. For example, in support of EPA Region 1, managed and was technical lead for USEPA Region 1 Work Assignment R01074, GE-Housatonic II. Under this WA, managed Multiple HH and Eco RAs, Sediment and Biota Sampling, and GIS Development for the GE-Pittsfield site in Housatonic, MA. As Project Manager and Lead Human Health and Ecological Risk Assessor, was part of EPA's large-scale commitment to addressing PCB contamination in the Housatonic River. Provided extensive remediation support at this site of national significance, contaminated primarily with PCBs and inorganics. Conducted oversight, data gap analysis, and supplementary human health and ecological risk assessments that focused on PCB releases. Project included the collection of more than 400 sediment samples to address data gaps. Additionally, conducted detailed amphibian, avian, fish and biota sampling studies to elucidate contaminant body burdens and bioaccumulation studies. Developed detailed GIS-searchable database and presentation mapping for all relevant environmental sampling. Work performed in support of this $1 million project addressed CERCLA, RCRA, SDWA, TSCA, 310 CMR 40 regulations.

- Was selected by EPA to oversee the national external peer review of EPA's *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (HHRAP) This guidance has largely superseded *Risk Assessment Guidance for Superfund* (RAGS) as the Agency's de facto bible for risk assessment under the auspices of EPA. In addition, Mr. Kline was selected by EPA to Chair this expert review panel in a two-day public comment session held in Dallas in 2000.

- Provides human health risk assessment support for the Utah Department of Environmental Quality contract including the Promontory HHRA Work Plan, the Bacchus HHRA Work Plan, and the Promontory Groundwater Draft HHRA.

- Was selected by EPA as an expert review panel member to present and discuss impacts of judgmental sampling and environmental statistics at the Midwestern States Risk Assessment Symposium (July, 2002).

- Selected by EPA Region 3 to author the *Johnson and Ettinger Vapor Instrusion Model Sensitivity Analysis*, developed for EPA Region 3 to support regional policy and guidance (2004).

- Served as technical advisor to EPA Region 5 to provide updates to EPA's *Delisting Risk*

Assessment Software (DRAS), Version 3 (March 2006).

- At the former Wall-Colmonoy Company Nickel Refinery, Isletta, NM, provided senior technical support and project management in support of EPA Region 6 in an investigation to determine the nature and extent of contamination at a Native American pueblo (Isletta Pueblo) as a result of fugitive dust emissions from historic operations at the nickel refinery facility located within the pueblo. Evaluated various nickel dust and residues. Developed a Risk Characterization for airborne, metallic nickel-laden dust in residential dwellings in the local subdivision. As senior risk assessor, coordinated with ATSDR to provide EPA Region 6 with a pragmatic risk evaluation and options for interim measures to mitigate exposure. Also, developed provisional inhalation toxicity criteria for use in developing a site-specific risk evaluation. Provided expert support to EPA Region 6 Office of General Counsel in their risk-based negotiated settlement and cost-effective remediation and land re-use strategy, which was achieved between the Isletta Pueblo and Wall-Colmonoy Company.

- Provides senior risk assessment support at the Petroleum Processors, Inc. (PPI) Site, a former petrochemical waste disposal facility located in a rural area north of Baton Rouge, LA. Support has included technical, litigation, and negotiation support to EPA for investigation and remediation activities conducted by the Industrial Defendants (IDs) at the PPI site. Provided technical review of the ecological risk assessment (ERA) conducted for an 8-square-mile segment of Devil's Swamp impacted by petrochemical waste spillage from the PPI site, in addition to contaminant releases from other industries bordering the swamp. Was the lead risk assessor for the human health risk assessment related to human activity in the swamp. Also, provided EPA with technical assistance during negotiations with the IDs regarding requirements needed to fulfill aspects of the investigations and subsequent reporting for the PPI sites.

- Recently authored Alternate Calculations and Review of the Draft Evaluation of Future Risk from Vapor Intrusion Using Sub-Slab Soil Gas Results: Technical Memorandum for the Former Chanute Air Force Base, Rantoul, Illinois Chanute AFB, Rantoul, IL, developed for EPA Region 5. This report assessment focused on development of alternate expressions of vapor intrusion risk and hazard associated with chlorinated solvents (TCE, PCE, chloroform, carbon tetrachloride, TCA, DCE, BTEX compounds) detected in shallow soil gas and indoor air at 17 Operable Units using EPA's Johnson and Ettinger Vapor Intrusion Model. January, 2007

- EPA Region 9, Complex Multi-media Human Health and Eco Risk Assessments at Pearl Harbor Naval Base, Pearl Harbor, HI. For nearly a decade, has been Lead HH Risk Assessor in support of EPA remedial actions at this complex site with intricate exposure, fate, and transport considerations that included contaminated soils, sediments, groundwater and tidal waters. Factors included the presence of vast military facilities as well as anthropogenic sources that contribute contamination, which include dioxin, PCBs, metals, and VOCs. Provided technical oversight and negotiation support for HH/Eco risk assessments, with emphasis on chlorinated and bioaccumulative compounds. Expert opinion supported risk management decisions regarding site reuse, site cleanup, and proposed remedies.

- EPA Region 9, Complex Human Health Risk Assessments, with Focus on Groundwater Remediation, McClellan AFB, Sacramento, CA. For nearly a decade, has managed the development of multiple risk assessments. Focused on the impact of radionuclides in soil and chlorinated solvents in groundwater, inclusive of drinking water exposures and vapor intrusion. Developed and coordinated development of risk-based remedial goals and review of developing remedial strategies for comprehensive RI/FS.

- EPA Region 9, Draft Site-Wide Risk Assessment of DOE Laboratory for Energy-Related Research (LEHR – UC Davis Areas), Davis, CA. As Project Manager and Lead Risk Assessor, supported EPA Region 9 in detailed review of site risk assessment to support the FS (multiple landfills and buried trenches). Conducted complex statistical analysis and background assessment. Evaluated metals, PAHs, PCBs, and radionuclides in soil/groundwater with fate and transport considerations for Putah Creek surface water (fish ingestion scenarios). Prominent COPCs included C^{14}, H_3, Cs^{137}, $U^{235/236}$, U^{238}, Th^{228}, and Pb^{210}. Addressed CERCLA, RCRA, CWA, CAA, and TSCA regulations.

- EPA Region 9, HHRA and Bioavailability Assessments, Concord Naval Weapons Station, Concord, CA. Reviewed multiple risk assessments supporting RI/FS documents for this active federal facility site, a key West Coast naval explosive ordnance trans-shipment facility. Mediated HHRA by institutional controls (ICs) and negotiated land use controls (LUCs) with EPA. Exposures of concern included UXO/MEC, PAHs, lead. Reviewed implementation of child exposures to lead utilizing USEPA's IEUBK model. Used dermal exposures and route-to-route extrapolation assumptions for toxicity COC. Performed detailed assessment of arsenic bioavailability in Diablo Creek sediments.

- Extensive public outreach support has been provided in concert with technical assistance for site remediation efforts. For example, presented Health Effects Associated with PAHs, Pentachlorophenol, and Creosote at a public meeting in support of EPA and the State of Illinois. Other public meeting support includes the presentation entitled: *Risk Assessment for the Evaluation of Direct and Multi-pathway Impacts of Emissions from the Maine Energy Company Facility, Biddeford, ME* on behalf of the Cities of Saco and Biddeford, ME (September 27, 2006).

Mr. Kline has supported human health and ecological risk assessment evaluations under federal and state regulatory programs at hundreds of sites nationwide. Below is a subset of the sites for which Mr. Kline has provided support while employed at TechLaw:

- Aberdeen Proving Ground, MD. Baseline Risk Assessment
- Alameda Naval Air Station, Alameda Point, CA. Human Health Risk Assessment.
- Albemarle Corporation, Orangeburg, SC. Hazardous Waste Combustion Risk Assessment
- Altus AFB, Altus, OK. Baseline Human Health and Ecological Risk Assessments.
- Amoco Oil Company, Yorktown, VA. RCRA Facility Investigation Report. RCRA Corrective Action Program.
- Anderson Air Force Base, Guam. Human Health and Ecological Risk Assessments.
- AFWTF - Atlantic Fleet Weapons Training Facility (Naval Station Roosevelt Roads) Vieques Island, PR – RI Dioxin exposure reviews.
- Beazer East (formerly Koppers), Cabondale, IL. Human Health Risk Assessment Review and Public Meeting Support.
- BASF Plastics/Polymer Manufacturer, Wyandotte, MI. Human Health Risk Assessment.
- Beltsville Agricultural Research Center, Beltsville, MD. Baseline HHRA (Site 27: Beaver Dam Road Landfill).
- Bristol-Myers Squibb Manufacturing Company and Chemsource Corporation. Human Health Risk Evaluation.

- Buckeye Products Plating Facility, Adrian, MI. Groundwater, Soil Gas and Indoor Air Vapor Intrusion Risk Assessment.
- Caribbean Petroleum Refining LP, Bayamon, PR. Human Health Risk Assessment and CA725 Determination.
- Chanute AFB, IL. Human health Risk Assessments, focus on vapor intrusion potential at 17 Operable Units. COPCs included TCA, DCE, PCE, TCE, carbon tetrachloride, chloroform, BTEX compounds.
- Crab Orchard National Wildlife Refuge, Cartersville, IL. Ecological Risk Assessment.
- Department of Energy, Mound Site, Miamisburg, OH. Ecological Risk Assessment.
- Devil's Swamp (Petro Processors), Baton Rouge, LA. Human Health and Ecological Risk Assessments.
- Dover Air Force Base, DE. Human Health and Ecological Risk Assessment.
- Dow Corning, Midland, MI. Human Health Risk Assessment
- Electric Boat Corporation (General Dynamics), Groton, CT. RCRA Facility Investigation Report, Shipyard Facility.
- Engelhard Corporation, Salt Lake City, UT. Human Health Risk Assessment.
- ETTP Oak Ridge (OB/OD Disposal Facility), Oak Ridge, TN. Human Health and Ecological Risk Assessment.
- Fort Eustis, VA. Skeet Range Site Human Health and Ecological Risk Assessments.
- Ft. Ord, Monterrey, CA. Human Health Risk Assessments.
- General Electric, Pittsfield, MA. RCRA Facility Investigation: Health and Environmental Risk Assessment Work Plans and Interim Corrective Measures reports. Seven Baseline Risk Assessment Reports.
- General Motors Corporation, Pontiac, MI. North Campus Facility Human Health Risk Assessment.
- George Air Force Base, CA. Human Health Risk Assessment.
- Griffiss Air Force Base, Rome, NY. HHRA Vapor Intrusion
- Hamilton Sunstrand (Standard)/UTC, Windsor Locks, CT. RCRA Facility Investigation Report, Human Health and Ecological Risk Assessments.
- Hess Oil/HOVENSA L.L.C., St. Croix, VI. Multiple AOC-Based Human Health Risk Assessments.
- Jefferson Proving Grounds, Madison, IN. Remedial Investigation/Feasibility Study and Depleted Uranium License Termination. Multiple Human Health and Ecological Risk Assessments.
- Knolls Atomic Power Laboratory, Windsor, CT. Sampling and Analysis Plan, RCRA Corrective Action Program.
- Kodak, Rochester, NY. Multipathway Incinerator Risk Assessment, RCRA Corrective Action Program.

- Laboratory for Energy-Related Health Research (LEHR) DOE Site, Davis CA. Human Health Risk Assessment
- Langley Air Force Base, VA. Human Health Risk Assessment.
- Lompoc Prison, CA. Human Health Vapor Intrusion Assessment – Chlorinated hydrocarbon assessment.
- Louisiana Army Ammunition Plant, Doyline, LA. Baseline Human Health and Ecological Risk Assessments.
- Maine Yankee Nuclear Energy Plant – Bailey Point, Wiscasset, ME. Baseline Risk Assessments for Decommissioning Main Plant Area and Backlands Area.
- Marshall Space Flight Center, National Aeronautics and Space Administration (NASA), Huntsville, AL. Human Health Risk Assessment.
- McClellan Air Force Base, Sacramento, CA. Human Health and Ecological Risk Assessments, Operable Units A-H.
- Moffett Air Force Base, CA. Dispute Resolution to Derive Risk-based Sediment Standards.
- Monsanto (Solutia), Indian Orchard Plant, Springfield, MA. RCRA Facility Investigation.
- Mount Diablo/Seal Creek, Contra Costa County, CA. Arsenic Risk Assessment/Bioavailability Study.
- Oak Ridge Reservation NPL Site, Oak Ridge, TN. Mercuric sulfide biotransfer (soil to plants) within the Lower East Fork of Poplar Creek.
- Paducah Gaseous Diffusion Plant, Paducah, KY. Site Investigation Report with risk component.
- Pantex Plant, U.S. Department of Energy, Amarillo, TX. Baseline Risk Assessment Work Plan.
- Pearl Harbor Naval Complex: Site-Wide Operable Unit, Pearl Harbor, HI. Human Health and Ecological Risk Assessments, Subsurface Soil RI/FS
- Petro-Processors of Louisiana, Inc., Baton Rouge, LA. Human Health and Ecological Risk Assessment Deliverables.
- PPG Industries, Inc., Barberton, OH. RCRA Facility Investigation: Human Health Risk Assessment.
- Pratt & Whitney. Conceptual Site Models and Health-Based Screening Levels for Pratt & Whitney's State of Connecticut Voluntary Corrective Action Program, Connecticut Facilities.
- Puerto Rico Environmental Quality Board, San Juan, PR. Human Health and Ecological Risk-Based Corrective Action Guidance Development.
- Redstone Arsenal, Madison County, AL. Baseline Human Health and Ecological Risk Assessments, Remedial Investigation RSA –11, OU-10, Former Sewage Treatment Plant No.1.
- Savanna Army Depot, Savanna, IL. Multiple Human Health and Ecological Risk Assessments.
- Savannah River DOE Site, Aiken, SC.. Human Health and Ecological Risk Assessment Deliverables.

- Sikorsky Aircraft Corporation, Stratford, CT. Public Health and Environmental Risk Evaluation, RCRA Facility Investigation, RCRA Corrective Action Program.
- Transcontinental Gas Pipeline Corporation (TRANSCO). Human Health Risk-based Settlement Negotiation with Department of Justice.
- Twin Cities Army Ammunition Plant, MN. Human Health Lead Exposure Assessment.
- Upjohn/Pharmacia, North Haven, CT. Human Health and Ecological Risk Assessments; Preliminary Media Protection Standards Document; and, Screening Level Risk Evaluation in Support of Corrective Measures Study.
- US Steel – Gary Works, Gary IN. Multiple Human Health and Ecological Risk Assessments.
- USS Lead, East Chicago, IL. Human Health and Ecological Risk Assessments.
- Weldon Spring Ordnance Works, Weldon Spring, MO. OU-2 Human Health Risk Assessment.
- Wright-Patterson Air Force Base, Dayton, OH. Basewide Ecological Risk Assessment.

As a Toxicologist with Earth Tech, Inc., Mr. Kline's responsibilities included task management and preparation of human health and ecological risk assessment under RCRA, CERCLA, State of Michigan Natural Resource and Environmental Protection Act, and other regulatory programs. Secondary responsibilities included risk assessment technical presentation/marketing responsibilities and technical peer review for risk assessment issues for other project, site, and corporate offices across the U.S. *Examples of projects he was involved with include:*

- Prepared human health evaluation for lead exposures for a railroad maintenance facility in eastern Michigan which was a human health-based risk assessment and remedial action plan for adult-only exposures to lead in soil under industrial conditions. The applied approach utilized a methodology to relate soil lead intake to blood-lead concentrations in female commercial/industrial workers of child-bearing age. The model then relates this level to predicted developing fetal blood lead levels of adult women with consistent site exposures.
- Completed a human health risk assessment for groundwater exposures from municipal landfill contamination in western Michigan; prepared a risk assessment and remedial action plan for a municipality administering to releases stemming from a capped municipal landfill. Through the use of restrictive covenants on the deeds of downgradient property owners and implementation of a municipal ordinance, complete exposure pathways were precluded. The recommended RAP specifies continued downgradient monitoring at a groundwater-surface water interface.
- Designated a Remedial Action Plan (RAP) for organic and inorganic contamination in environmental media at a paper manufacturing plant in northeast Michigan. The RAP focuses on a former waste burning area and effluent treatment ponds. Complexity of the site is compounded by the fact that the site borders a large riverine system and Lake Huron.
- The RCRA Hazardous Waste Contingency Plan (RCP) and Pollution Preparedness Implementability Plan (PIPP), completed for an office products company in western Michigan combines the requirements for both plans and fulfills State of Michigan requirements for large-quantity RCRA generators.
- Baseline Risk Assessment for the National Jefferson Memorial Expansion, East St. Louis, Illinois. Prepared for the National Park Service, 1997.
- Soil and Groundwater Investigation at Wind Cave National Park, Wind Cave, South Dakota.

Prepared for the National Park Service, Omaha, NE, 1997.

- Ecological Risk Assessment for Crab Orchard National Wildlife Refuge Superfund Site, PCB Area Operable Unit, Carterville, IL. Prepared EPA Region 5, 1997.

With Consultox, Ltd., as a toxicologist, primary responsibilities included toxicological review of the establishment of symptomatology and causation and etiological review of toxicants in litigation support. Medical records and symptomatology were used to rate individuals in terms of potential causal connections to the chemicals involved and the seriousness of their illnesses. Toxicants were comprised of environmental contaminants (e.g., dioxins, furans, PCBs), pharmaceuticals (e.g., intrathecal drugs and dyes), and industrial products (e.g., pesticides). Conducted risk assessment tasks in support of litigation involving the ingestion, dermal absorption, and inhalation of dioxins and PCBs. Solely responsible for the development of an environmental consulting group under the auspices of Consultox, Limited. Developed environmental contracts and teaming partnerships with state agencies to support the State of Maine in a variety of environmental tasks.

While working as a Toxicologist at Jacobs Engineering Group, Mr. Kline was responsible for generation and overall technical quality of toxicology and risk assessment support provided to a wide variety of environmental projects. Responsible for site and task management in areas of human health and ecological risk assessment; analytical data evaluation, interpretation, and manipulation; and contaminant fate and transport, providing comprehensive risk assessment and senior technical oversight support to the Kansas City and other Jacobs offices across the nation. Risk assessment projects and tasks were completed for a wide variety of clients including the US Air Force, Navy, Army, Department of Energy, and the E PA. Responsible for corporate-wide review of risk assessment tasks, as requested. *Projects included:*

- Technical methodology documents supporting Administrative Order on Consent for Removal Actions and Remedial Investigation/Feasibility Study: Overview of Cleanup Strategy. ALCOA – Davenport Facility, Riverdale, IA. Prepared for EPA Region 7, 1995.

- Risk-based Concentration Equations and Calculations: Calculation of Risk-based Concentrations for the Tetrachloroethene Aboveground Storage Tanks and the 86-inch Continuous Heat Treatment Line, ALCOA – Davenport Facility, Riverdale, IA. Prepared for EPA Region 7, 1995.

- Expanded Site Inspection at Howe Sanitation Superfund Site, Spencer, IA. Prepared for EPA Region 7, 1995.

- Baseline Risk Assessment for Shemya Air Force Base, Eareckson Air Station, Shemya Island, AK. Volumes I through IV. Prepared for the Air Force Center for Environmental Excellence, US Air Force, 1995.

- Management Action Plan for the Remedial Investigation/Feasibility Study, Shemya Air Force Base, Eareckson Air Station, Shemya Island, AK. Prepared for the Air Force Center for Environmental Excellence, US Air Force, 1995.

- Baseline Risk Assessment for Chemical Commodities, Inc. Superfund Site, Olathe, KS. Prepared for EPA Region 7, 1995.

- Project Operations Plan/Quality Assurance Project Plan (POP/QUAPjP) for Sediment/Soil Investigation Study, Mississippi River Pool 15 for the Phase III Field Sampling Plan. Prepared for the EPA Region 7, 1995.

- Baseline Risk Assessment, Source Control Operable Unit, RI/FS, Castle Air Force Base, Castle AFB, CA. Prepared for the Air Force Center for Environmental Excellence, US Air Force, 1995.
- Baseline Risk Assessment, Comprehensive Basewide Evaluation, RI/FS, Castle Air Force Base, Castle AFB, CA. Prepared for the Air Force Center for Environmental Excellence, US Air Force.
- Baseline Risk Assessment, Barstow Marine Corps Logistics Base, Barstow MCLB, CA. Prepared for the US Navy, 1995.
- Baseline Risk Assessment, Dunavan Waste Oil, Danville, IL, 1994.
- Baseline Risk Assessment, South Campus Facility, Oak Ridge Associated Universities, Oak Ridge, TN. Prepared for the US DOE, 1994.
- Baseline Risk Assessment, Indian Mountain LRRS, AK. Prepared for the Air Force Center for Environmental Excellence, US Air Force, 1994.
- Baseline Risk Assessment, Supplemental Remedy Protectiveness Evaluation. Libby Groundwater Superfund Site, Libby, MT. Prepared for EPA Region 8, 1994.
- Baseline Risk Assessment, Pilot Building Demolition, Rocky Mountain Arsenal, Denver, CO. Prepared for the US Army, 1994.
- Baseline Risk Assessment, Comprehensive Response Action Risk Evaluation, Operable Unit Z. RI/FS, Former Uranium Processing Facility, Fernald Environmental Management Project, Fernald, OH. Prepared for DOE, 1994.
- Work Plan Volumes I and II, City of Wright Groundwater Contamination Superfund Site, RI/FS for the City of Wright Groundwater Contamination Site, Wright City, KS. Prepared for EPA Region 7, 1994.
- Risk Assessment Scoping Document for the City of Wright Groundwater Contamination Superfund Site, RI/FS, Wright City, KS. Prepared for EPA Region 7, 1994.
- Baseline Risk Assessment, Yuma Marine Corps Air Station, Yuma, CA. Prepared for the US Navy.
- Field Sampling and Analysis Plan, Part I of III - Field Sampling Plan, RI/FS for the City of Wright Groundwater Contamination Site, Wright City, KS. Prepared for the Environmental Protection Agency, Region VII, 1994.
- Procedures for the Ecological Risk Assessment at the Mississippi River Pool 15 Site, Davenport, IA. Prepared for EPA Region 7, 1994.
- Identification of Contaminants of Concern at the Mississippi River Pool 15 Site, Davenport, IA. Prepared for EPA Region 7, 1994.
- Sampling and Analysis Plan, Part III of III - Quality Assurance Project Plan, RI/FS for the City of Wright Groundwater Contamination Site, Wright City, KS. Prepared for EPA Region 7, 1994.
- As an Intern Toxicologist with ChemRisk/McLaren/Hart, was responsible for assessment of risk to human health associated with exposures at hazardous waste sites; toxicological support for litigation; and generation of professional position papers and journal article submittals.

- Was also responsible for management of Health and Safety for ongoing RI/FS under CERCLA as Health and Safety Manager with Jacobs Engineering Group. This included review and compliance of Health and Safety Plans as the alternate Health and Safety point-of-contact representing the Kansas City office and serving as the liaison between the Kansas City office and Health and Safety corporate offices, providing periodic updates and status reports.

Mr. Kline has been an integral part of the development and presentation of guidance and training materials, particularly those topics that relate to risk assessment and corrective action, created in support of EPA and state regulatory agencies. *His experience includes the following:*

- Author, Risk-Based Corrective Action Program Manual (RBCAPM) and Human Health and Ecological Risk Assessment Guidance Training, Puerto Rico Environmental Quality Board (PREQB). Developed RBCAPM and site management program that included regulations and associated human health and ecological risk characterization guidance documents. Assisted PREQB with training and implementation of the Program and site management decision-making. Development included application of land-use-specific risk assessment and risk-based decision-making practices on a regional scale, specific to the islands of Puerto Rico, Vieques, and Culebra. Contact media include soil, sediment, groundwater, and air, inclusive of the spectrum of residential and C/I exposure pathways including indoor air/vapor intrusion and leaching to groundwater fate and transport pathways. Includes site-specific methods to evaluate TPH data w/r/t aromatic and aliphatic fractions; consideration of Institutional Controls and Land-Use Controls (LUCs) to mitigate exposure; site management decision/evaluation forms; and site-specific ecological resource forms and checklists. The RBCAPM guidance implements a four-tiered approach to corrective action, with increasing levels of site-specificity. Implementation of the program significantly reduces the amount of time needed to complete site investigations and cleanup actions at sites, and improves the consistency of these investigations. Provides continuing support for this project through ongoing training efforts and expert technical support. Addressed regulations under RCRA, CERCLA, CAA, OSHA, 40CFR 280 and 282, and PREQB 4362.

- Provides risk assessment training initiatives for states and EPA, and has provided EPA expert technical support on numerous occasions to EPA, individual states, and municipalities.

- In addition, in a previous position as Site Assessment Investigator, he was authorized by the EPA Superfund Division to conduct official investigations pursuant to Section 104e of CERCLA.

Mr. Kline has supported redevelopment and reuse efforts at federal facility and private sites nationwide through the application of risk assessment and reuse characterization to develop appropriate remedial/reuse goals, LUCs, ICs, and other measures to ensure the protection of, particularly, human health. *This has included the following:*

- EPA Region 9, Human Health Risk Assessments and Risk-Driven Property Reuse Assessments at Former Alameda AFB, Alameda, CA. As HH Risk Assessor, performed technical review of HH risk assessments of lead, PCBs, and chlorinated solvents. Parcels of this federal facility were awaiting transfer to private/other entities. Project included residual risk assessment for housing facility with recommendations regarding future land use and institutional controls to provide for public welfare.

- Presentations have included topics such as Brownfields Redevelopment Training with the state programs of KY, TN, NC, GA, SC, FL, AL, and MI (September, 2005).

EMPLOYMENT	TechLaw, Inc.	Vice President	1997 - Present
	Earth Tech, Inc.	Toxicologist	1996 -1997
	Consultox, Ltd.	Toxicologist	1996
	Jacobs Engineering Group, Inc.	Toxicologist / Risk Assessment Group Coordinator	1993 - 1996
	ChemRisk/McLaren/Hart	Intern Chemist	1992
TRAINING/ CERTIFICATIONS	➢ Total Quality Management Training; ➢ Children's Health Risk Assessment Training, 1998; ➢ Risk Communication Training, 1998 & 2000; ➢ Uncertainty Analysis Training, 1998; ➢ Molecular Mechanism Risk Assessment Training, 2000; ➢ Neurotoxicology of Metals, 2001; ➢ Radiation Risk Assessment (ITRC, August, 2004); ➢ Probabilistic Risk Analysis: Assessment, Management and Communication (Harvard University School of Public Health, October, 2004)		

Dr. Stanislas Pauwels

PROFESSIONAL EXPERIENCE	Total Years' Experience: 22 Years' Experience with ESAT Region 1: 10 Years with TechLaw: 8
EDUCATION	PhD, Zoology, University of Maine (1990) MS, Zoology, University of Maine (1985) BA, Biology and Environmental Science, State University of New York at Buffalo (1983)

QUALIFICATIONS

Prepared and reviewed more than 150 SLERAs and BERAs at Superfund and RCRA sites

Managed all RCRA and Superfund ERA projects under ESAT Region 1 contract since 2002

Supports Region 1 EPA through extensive document review, expert advice and stakeholder meetings

Dr. Pauwels has more than 22 total years of experience in the environmental field, with proven technical expertise in ERA, ecotoxicology, data analysis and interpretation, and field support. He has managed all the RCRA and Superfund ERA projects under the ESAT Region 1 contract since 2002, and he has deep experience working with and interpreting state, regional, and federal ERA regulations and guidance. He has used this knowledge to prepare and review more than 150 Screening-Level ERAs (SLERAs) and Baseline ERAs (BERAs) at Superfund and RCRA sites nationwide. He has served as Lead Biologist and/or Project Manager at more than 65 Superfund and RCRA sites to assess and quantify the effects of heavy metals, PAHs, pesticides, PCBs, dioxins and furans, and chlorinated solvents on aquatic and terrestrial ecological receptors, communicating his findings to clients nationwide, both in writing and orally. He has performed technical document reviews and prepared work plans and QAPPs at Superfund sites nationwide, including landfills, wood treatment facilities, tanneries, chemical facilities, mining sites, and military bases.

As the ERA Lead he reviews related deliverables and monitors the schedules for these work products, ensures staff members working within this task area are properly trained, conducts day-to-day problem solving, leads meetings and communication within the group, coordinates staffing, and ensures cross-training within the ERA group.

Dr. Pauwels has also been TechLaw's Lead Ecological Risk Assessor since 2005. He provides technical oversight for all ERA-related document reviews across the company's contract vehicles, both at the federal and state levels. In that capacity, he prepares technical comments himself, while also providing company-wide QC input for all ERA-related technical memoranda prepared by TechLaw staff. He answers internal technical questions posed by the TechLaw reviewers, communicates the findings directly with clients, and provides ERA mentoring of junior staff members, including careful review of their deliverables for improvement, and making sure they have up-to-date training and resources.

His previous consulting experience includes providing ecological support for economic benefits analyses and regulatory impact analyses on environmental rules proposed by EPA for cooling water intake structures, animal feed lots, acid rain, herbicide application, eutrophication, mercury deposition, and petroleum-related activities. He is also experienced addressing environmental issues related to petroleum exploration, refining, chemical manufacturing, and oil spills, both in the US and abroad.

Under the ESAT Region 1 contract, his responsibilities include:

- Providing Lead ERA support, such as: technical reviews of ERA documents; preparing reports in support of EPA's ERA activities; preparing biological long-term monitoring programs; managing work flow; writing the ecological section of the ROD for Superfund sites; and insights and expertise at public meetings, technical advisory meetings and stakeholder meetings.
- Close communications with the EPA TOPOs to coordinate project planning and management, scheduling, staffing, data analysis and evaluation, deliverables associated with TOs, and QC issues.

RELATED EXPERIENCE

Dr. Pauwels has extensive ERA and biological sampling, assessment, modeling and interpretation experience at several EPA-regulated sites in Region 1. Examples of this experience include:

Sporting Goods Properties, Bridgeport, CT

Reviewed and commented on the revised RFI Phase II Wetlands Characterization Work Plan; determined if all of the potentially-impacted wetlands at the Sporting Goods Properties that require investigation were included in the RFI Phase II Wetland Characterization Work Plan; reviewed and commented on a qualitative amphibian and benthic macroinvertebrate survey of the wetlands; used ProUCL (version 4.00.02) to calculate the 95% Upper Tolerance Limits (UTLs) and 95% Upper Confidence Limits (UCLs) for sediments collected from three background locations; and reviewed and commented on the ecological risk work plan and the restoration/monitoring plan for Success Lake.

Hamilton Sundstrand Facilities, Windsor Locks, CT

Participated in a site visit and subsequent meeting with EPA and site owners to discuss a project status update of the proposed site investigation work and ERA efforts at the facility; reviewed documents and reports to evaluate the benefits of continuing to perform annual wetland monitoring at off-site wetlands affected by groundwater seeps originating at the site; reviewed and commented on three documents: (a) a table summarizing several rounds of comments and responses to comments from EPA, CTDEP and the site owners on the draft ERA work plan; (b) a memorandum from the site owners on how to include background and reference conditions in the BERA; and (c) a memorandum from the site owners outlining a weight-of-evidence approach for use in the BERA; reviewed and commented on four documents in support of ERA: (a) the draft ERA work plan, (b) the draft QAPP for the ERA; (c) a previous ERA for aquatic habitats; and (d) the response of the site owners on the regulatory comments on the previous ERA.

Constellation Energy-Mystic Station, Boston, MA

Reviewed and commented on an ecological receptor exposure pathway scoping checklist prepared by the site owners. The goals of the review were to ensure that: (a) the habitats on and around the facility, and by association the biological receptors, were accurate and properly identified; (b) all portions of the checklist were completed; (c) the rationale for the media-specific determinations were reasonable and reflected current federal and state ecological risk practices; (d) the decision on the need for further evaluation was properly

justified; (e) the conclusions about whether to proceed or not with further ecological evaluations were justified and defensible; and (f) the information provided in the checklist could be used to support a future screening-level ERA.

Nyanza Chemical Waste Dump, Ashland, MA

Performed in-depth literature reviews on the ecotoxicity of mercury to derive defensible Toxicity Reference Values and Critical Body Residues (CBRs) for fish, birds and mammals for use in an ERA. These values were used in the BERA to assess risk to aquatic community-level receptors and wildlife receptors.

Multiple Region 1 EPA-Specific Projects

Dr. Pauwels has prepared SLERAs and BERAs at Superfund sites, including a copper mining site (Ely Copper Mine, Vershire, VT), a wood treatment facility (Hathaway-Patterson Wood Treatment Facility, Mansfield, MA), an industrial landfill (Scovill Industrial Landfill, Waterbury, CT), and a manufacturing facility (Ottati and Goss, Kingston, NH). He also provided expert advice on ERA issues on behalf of EPA at internal technical meetings or at meetings with Potentially Responsible Parties (PRPs). Examples include a decommissioned nuclear power plant (Connecticut Yankee's Haddam Neck Nuclear Power Plant, Haddam, CT), a copper mine in a marine estuary (Callahan Mine, Cape Rosier, ME), and a landfill near a river (Peterson Puritan Landfill, Cumberland and Lincoln, RI).

Also in Region 1:

- Reviewed applicable guidelines such as EPA's Draft Ecological Receptor Exposure Pathway Scoping Checklist developed for use at Region 1 RCRA sites, making many suggestions to ensure that the checklist followed the basic ecological exposure assessment principles. EPA included all the recommendations in the final version of the scoping checklist. The checklist is used by EPA RCRA managers in Region 1 to determine the need for ecological evaluations at their sites.
- Prepared and delivered a presentation on integrating existing ERA guidelines into the EPA Region 1 RCRA site investigation and remedial decision making process. One goal of the presentation was to outline the guidelines and show the RCRA Remedial Project Managers how and where the ERA process fits into a RCRA facility investigation. EPA used this information to streamline the RCRA facility investigations.
- Used wildlife food chain modeling to back-calculate "effect" Ecological Soil Screening Levels (Eco-SSLs) for 16 compounds protective of terrestrial birds and mammals. The results of this analysis were published as a technical poster at a Society of Environmental Toxicology and Chemistry (SETAC) conference. The effect EcoSSLs are now used in Region 1 BERAs.
- Reviewed the literature to develop whole fish CBRs for use in Region 1 BERAs. EPA requested that Dr. Pauwels present the findings to the Region 1 Biological Technical Advisory Group (BTAG). Prepared a PowerPoint presentation and presented the talk to the BTAG. The talk was well-received and the CBRs have been used to support Region 1 BERAs.

Additional Related Experience

Dr. Pauwels' overall ERA and related technical background covers a wide range of experience at locations across several EPA and state contracts. This experience includes:

- Calculated sediment Preliminary Remediation Goals (PRGs) for benthic invertebrates by correlating the effects observed in toxicity tests to the measured sediment contaminant levels. Entered the sediment PRGs into a food chain model to ensure that the sediment PRGs would also protect local wildlife receptors. EPA implemented the sediment PRGs because they protected both receptor groups.
- Provided senior-level support on SLERA documents and habitat assessments for EPA Region 5. Evaluated ecological habitats on and off-site in support of the classification of site-impacted groundwater using the Guidelines for Groundwater Classification under the EPA Groundwater Protection Strategy. Reviewed the results of groundwater sampling in the perimeter groundwater monitoring reports to evaluate potential groundwater–to-surface water effects on surrounding habitat. Evaluated ERA presentation in RI reports.
- Reviewed a soil background study performed at a facility in EPA Region 2 to ensure compliance with EPA guidance and to ensure the background results support future ERAs. Evaluated the ERA aspects of the RFI report and provided negotiation support in resolving EPA comments on the RFI report.
- Provided comments on proposed SOPs at an EPA Region 5 site for sediment toxicity testing using site-collected samples and a benthic invertebrate survey. Provided review comments on a baseline characterization work plan for streams, sediment toxicity testing results, a benthic invertebrate survey, and changes in dioxin and furan concentrations in sediment collected from streams on and off the site over time. Also provided review comments on a proposed data gap evaluation in support of an incomplete BERA.
- Surveyed a forested wetland to determine the presence of vernal pools. Developed a survey protocol to characterize the physical attributes and biodiversity (i.e., identify all facultative and obligate invertebrate and vertebrate vernal pool species) of the on-site pools, plus several off-site vernal pools.
- Performed an internet-based literature search on the aquatic toxicity of four chlorinated compounds using several on-line databases. Used the aquatic toxicity data to calculate Water Quality Criteria (WQC) based on federal guidelines. EPA used the WQCs to drive remedial decision-making at a brook recharged by contaminated groundwater from a nearby landfill.
- Used statistical analysis techniques such as regressions, ANOVAs, and graphical analysis to describe trends in mercury levels of yellow perch collected from a mercury-contaminated river. The goal was to optimize fish sampling efforts for a long-term monitoring program. The analyses generated recommendations on the number, size, and age of yellow perch to be collected to identify changes in whole fish mercury levels over time.
- Participated in a visit at a Superfund site and attended several technical support meetings to discuss sampling proposals, the future BERA, the preliminary ecological risk report, and sediment PRGs. The meetings were attended by several federal and state agencies. Supported EPA by providing input during the meetings on the proposed sampling

approaches, the structure of the BERA, the proposed sediment PRGs, review comments, responses to those comments, and other related technical issues.

- Reviewed the draft BERA work plan for a Superfund site to identify which assessment or measurement endpoints would be problematic to evaluate given the available data. Suggested alternative endpoints that might better fit the data while still providing insights into food chain effects. EPA used this information to help with the design of a field sampling effort.
- Evaluated arsenic uptake in fish at two seeps affected by a Superfund landfill. The support consisted of: (a) deriving Bioaccumulation Factors (BAFs) for As in fish using literature data; (b) calculating As exposures at the seeps using long-term monitoring data; (c) estimating a range of As levels in fish based on the exposures and the BAFs; and (d) determining if the As tissue levels were a risk to fish. No risk was found under worse-case arsenic exposures at either seep. EPA used this information in discussions with local residents.
- Estimated the impacts of four herbicides on stream receptors. This effort included performing a literature search to collect toxicity data; estimating pesticide levels in streams using surface runoff and groundwater recharge data; and quantifying the biological effects of the pesticides. This effort resulted in a written commendation from EPA.

ADDITIONAL EXPERIENCE

Dr. Pauwels' additional environmental science experience includes:

- Attended a conference on behalf of EPA to obtain information on the effects of Hg on wildlife; measurement of Hg in wildlife tissues using the Milestone Hg analyzer; developing CBRs for ecological receptors; and performing ERAs for Hg. EPA used this information to plan for a BERA at an Hg-contaminated Superfund site.
- Developed a comparative risk-based framework to help EPA predict ecological impacts of toxic release inventory (TRI) chemicals to aquatic receptors. Identified key assessment variables; proposed a method to combine exposure and effects data; assembled an aquatic toxicity database for TRI chemicals; and developed an approach to score facilities based on annual releases.
- Designed a study to assess the impacts of bioremediated sediments. Developed a sampling and toxicity testing program to determine the feasibility of using in-situ bioremediation and developing sediment cleanup goals; authored a report on the approach for regulatory review; and presented the findings and report to state regulators.
- Assessed toxicity of bioremediated refinery soils. Participated in meetings with regulators to develop the study and designed a tiered testing approach that received written commendation from regulators.

EMPLOYMENT	TechLaw, Inc.	Lead Ecological Risk Assessor	2005 - Present
	Lockheed Martin	Lead Ecological Risk Assessor	2002 - 2005
	Abt Associates	Senior Scientist	1998 - 2002
	ChemRisk	Senior Scientist	1997 - 1998
	Exxon Biomedical Sciences	Senior Scientist	1990 - 1997
SPECIAL TRAINING/ CERTIFICATIONS	Annual Laboratory H&S, chemical hygiene, OEP, ethics, COI; data integrity, information security, cyber security awareness training; biannual CPR/First Aid training; OSHA 40-hr HAZWOPER; 8-hr OSHA refresher training-annually; respirator fit testing; Sexual Harassment Prevention, Protected Categories training; computer skills include knowledge of Excel, Access, Word and statistical software packages. "Principles and Techniques of Electrofishing," U.S. Fish and Wildlife Service, National Conservation Training Center; "Understanding Sediment Analysis and Interpretation," University of Wisconsin-Madison, WI; "Environmental Chemistry for Investigating and Remediating Soil and Groundwater Contamination," University of Wisconsin-Madison, WI; "Application of Ecological Risk Assessment to Hazardous Waste Site Remediation" workshop at the International Conference on Developing Cleanup Standards for Contaminated Soils, Washington, DC; "Applying Ecological Risk Assessment Strategies to Address Environmental Problems" workshop at the 7th Annual Conference on Hydrocarbon Contaminated Soils, University of Massachusetts.		
PUBLICATIONS AND PRESENTATIONS	Region 1 EPA BTAG presentation, 2009, Fish-CBRs for metals, organochlorinated pesticides, PCBs, and dioxin. Comparisons of blood Hg levels measured in various bird species exposed to a Hg-contaminated wetland, poster presentation, 2008, Society for Toxicology and Chemistry Annual Meeting, Montreal, PQ.		

Bradley Martin, PE

PROFESSIONAL EXPERIENCE	Total Years' Experience: 19 Years' Experience Supporting EPA contracts: 4 Years with TechLaw: 4
EDUCATION	B.S., Civil Engineering, University of Illinois at Urbana-Champaign, 1994

QUALIFICATIONS

Professional Engineer with more than 19 years of consulting engineering experience

Provides technical reviews for engineering related documents

Experienced with investigation and design for remedial construction projects

Mr. Martin is a registered Professional Engineer (Illinois, New Jersey-In Progress) and a Certified Professional in Erosion and Sediment Control (CPESC). He has more than 19 years of consulting engineering experience in environmental remediation, assessment, modeling and natural resources preservation for industrial, municipal, state and federal clients. He has successfully planned and implemented a wide range of projects, including: large-scale RCRA remedial design implementation; remedial construction management; engineering feasibility studies; multi-stage intrusive environmental assessments; risk-based corrective action (RBCA)leaking underground storage tank (LUST) assessments, removals and remediation; Phase I and Phase II ESAs for property transfers; National Environmental Policy Act (NEPA) assessments, and National Pollutant Discharge Elimination System (NPDES) compliance focusing on erosion and sediment control. His work has contributed to the re-development of multiple Brownfields industrial sites, remediation of large impacted areas under existing residential homes, operation and development of industrial facilities, and identification and reduction of environmental liabilities to support property transactions.

In addition, he has conducted multiple technical reviews for EPA under the RCRA Enforcement, Permitting, and Assistance (REPA) contracts, Regional Oversight Contracts (ROC) and Superfund Technical Assessment & Response Team Contracts (START). These documents include, but are not limited to, Remedial Investigations/Feasibility Studies (RI/FS), Remedial Action Work Plans, RCRA Closure reports, Remedial Action/ Remedial Design (RD/RA) Work Plans, Remedial Designs and Site Investigations and Preliminary Assessments/Site Inspection (PA/SI) Reports, Corrective Measures Studies (CMS), Corrective Measures Implementation (CMI) Work Plans.

Specific professional work experience includes:

Management Experience

Mr. Martin is TechLaw's lead engineer for the ROC 9 contract and leads the TechLaw engineering group. In addition, Mr. Martin is the Chicago Office Manager. During his tenure with TechLaw ***from 2009-2013***, Mr. Martin has:

- Managed TechLaw's REPA Region 5, Enforcement Support Services (ESS) Region 5/6, and Great Lake National Program Office (GLNPO) contracts. Also serves as a Project Manager under TechLaw's ROC Region 2, ROC Region 4 and ROC Region 9 contracts.

Project specific experience includes the following:

Ansul Sediment Remediation, Marinette, Wisconsin

Great Lakes National Program Office (GLNPO) Sheboygan River Site

STET, Mr. Martin served as Project Manager for TechLaw on sediment sampling and Construction Quality Control (CQC) inspections to support the EPA's GLNPO, Great Lakes Legacy Act (GLLA) sediment remediation project for the Lower River and Inner Harbor of the Sheboygan River Area of Concern (AOC) located in Sheboygan, Wisconsin.

The Sheboygan River and Harbor Superfund Site occupies the lower 14 miles of the Sheboygan River from Sheboygan Falls to the mouth of the harbor. Data collected over the past several decades as part of Superfund activities indicate elevated levels of PCBs and PAHs present within the Lower River and Inner Harbor. The sediment contamination impacts human health and has resulted in a consumption advisory of fish due to elevated levels of PCBs. Contaminated sediments within the AOC are a significant source of contamination to Lake Michigan according to historical data. Contaminated sediments affect several beneficial use impairments (BUIs) in the AOC. The sediment remediation involved mechanical dredging to remove sediment contaminated with PCBs and PAHs on a 24-hour a day schedule, placing a residual management cover over a portion of the river stretch, dewatering and stabilizing the dredge material, and disposing of the processed dredge material offsite in permitted landfills.

As a subcontractor to Ryba Marine Construction Co – Terra Contracting a Joint Venture (RTJV), TechLaw was responsible for the collection and processing of over 200 post-dredge sediment confirmation samples. In addition, TechLaw was on-site for the duration of the project performing CQC activities, including sampling waste water treatment plant (WWTP) effluent associated with the dewatering and stabilization of sediments, providing NPDES discharge monitoring reports and collecting and reporting particulate air quality measurements results from continuous air monitoring stations. Mr. Martin served as Project Manager for TechLaw and coordinated/managed field staff on sediment sampling and CQC activities.

Expert Witness Support, Confidential Foundation, Steel Mill, Eastern U.S.

STET, Mr. Martin was co-author of an expert report related to hazardous waste contamination and erosion and sediment control (ESC) litigation at a steel mill in the eastern United States. The expert report was focused on the RCRA regulatory status and disposition of several hazardous waste management units (HWMUs), sufficiency of the monitoring system and ESC.

STET Ansul Sediment Remediation, Marinette, Wisconsin

Over the course of 2011 and 2012, Mr. Martin was the project manager and technical lead on document reviews and studies under the REPA Region 5 contract related to sediment remediation designs at the former Ansul, Inc. site in Marinette, Wisconsin. As a result of the arsenic-based herbicide manufacturing and stockpiling arsenic based salt in uncovered, unlined locations at the site immediately adjacent to the Menominee River, the facility had releases of arsenic to sediments in the river. Under an Administrative Order of Consent (AOC), the facility is responsible for remediating, via removal, these sediments. While the AOC required removal of sediments as part of the remediation, it also allowed for an alternative, value-based approach to be submitted by the facility if removal alone was economically and technologically impractical and the alternative protects human health and the environment, is legally implementable and meets remedial goals.

Mr. Martin led the team and was the primary author of TechLaw's evaluation, on behalf of EPA, of an alternative; value-based, sediment removal plan submitted by the facility and also conducted an independent value-based evaluation.

The facilities' alternative approach included in-situ capping of a portion of the sediments and dredging the remaining sediments as a method to improve quality (i.e., less generation of suspended sediments during dredging), reduction in waste volume generated by not dredging all the material, and reduced costs. In addition to evaluating the facilities proposed alternative design, Mr. Martin led an independent, value based study of remediation at the site including:

- Evaluating dredging versus capping costs.
- Studying the possibility of using a reactive cap to address known concentrations of arsenic and determine cost implications.
- Studying disposal costs and including an assessment of whether Ansul used the closest disposal facility in their cost estimates. Also, an independent determination of the nearest Subtitle D facility capable of accepting the sediments and cost information.
- Evaluating the possibility of using an expanded "dry dig" area for sediment removal and associated costs with the option.
- Evaluate the value of using an environmental bucket versus a traditional clam-shell bucket to remove sediments.
- Provide information on hydraulic dredging costs and study the value of using this technique to dredge sediments.
- Develop potential best management practices (BMPs) for minimizing sediment loss during dredging.

Based on TechLaw's study, EPA determined that in-situ capping, as proposed by the facility as a value based approach, was not an acceptable alternative, based on the cost difference and protection of the environment. One of the remedial possibilities studied by TechLaw, a reactive cap, were not deemed to add value to the project based on the technical limitations of this type of cap with the contaminant at the site (arsenic). Another idea, hydraulic dredging was not proposed based on costs alone. Other ideas, including using an environmental bucket for dredging are incorporated into the final remedial design and implementation of the remedy, which is currently on-going.

Remedial Design Cost Estimates, Former Boivin Oil Company, Neopit, Wisconsin

STET, Mr. Martin prepared remedial cost estimates using The Remedial Action Cost Engineering and Requirements (RACER) software for multiple remedial designs under the REPA Zone 2 Region 5 contract. The Boivin Oil site was a former wholesale fuel oil distribution and retail gasoline service station with a large Light Non-Aqueous Phase Liquid (LNAPL) petroleum=related plume. The site has an inactive air sparging (AS)/soil vapor extraction (SVE) system. TechLaw added site-specific parameters to reflect project-specific conditions and requirements, where available, to develop cost estimates for completing remediation at the site. Remedial costs were estimated for several remedial technologies including: In-Site Bioslurping, LNAPL recovery, In-Situ Biological Treatment, Soil excavation, and AS/SVE.

Remedial Design Cost Evaluations/Estimates, Anderson Redevelopment Commission, Anderson, Indiana

In 2012, Mr. Martin evaluated remedial cost estimates and also prepared remedial cost estimates using The Remedial Action Cost Engineering and Requirements (RACER) software under the REPA Zone 2 Region 5 contract. The Anderson Redevelopment Commission site was a former GM site where remediation of chlorinated solvents had previously been attempted and partially failed. Mr. Martin evaluated remedial cost estimates provided from three different consultants for the site to determine a remedy or combination of technologies which would best eliminate the VOC source. As part of this task, Mr. Martin developed and presented a detailed cost estimate for this preferred remedial alternative. Remedial costs were evaluated/estimated for several remedial technologies including: in-situ chemical oxidation (ISCO), thermal treatment, AS/SVE and slurry wall containment.

SWMU 6 Feasibility Study, Vieques, Puerto Rico
In 2012, Mr. Martin led the review of an FS for a solid waste management unit (SWMU) at the former Naval Ammunition Support Detachment, in Vieques, Puerto Rico under TechLaw ROC Region 2 contract. The FS developed remedial alternatives for contaminated sediment in a lagoon formerly used waste disposal site. The technical review assessed the FS for adequacy and compliance of the document with applicable EPA rules and guidance. Mr. Martin provided comments to EPA on the FS and also participated in a meeting with stakeholders (i.e., EPA, Puerto Rico Environmental Quality Board and the Navy) to discuss issues related to the FS.

Wayne Disposal Inc., Belleville, Michigan
In 2012, Mr. Martin led a technical review of the Wayne Disposal Inc. application for modification to their RCRA/TSCA permit for their RCRA Subtitle C/TSCA landfill in Belleville, Michigan under the REPA Region 5 contract. The application for modification included an expansion of the landfill over existing (and closed) waste disposal units and expansion into undeveloped land. Mr. Martin worked on providing a cross-walk of the permit submittal to the regulatory requirements (i.e., summarizing how each requirement is addressed and providing site-specific/project-specific information found within the permit application). Mr. Martin also evaluated the basis for design and geotechnical and stability evaluation presented in the permit application for adequacy.

CERLCA Landfill Audit, Oak Ridge Reservation, Oak Ridge, Tennessee
In 2011, Mr. Martin was the lead auditor conducting an audit of the remedial action activities and associated response action documentation associated with the operation of the Environmental Management Waste Management Facility (EMWMF). The EMWMF is a Comprehensive Environmental Response, Compensation, and Liability (CERCLA) Classified Waste Disposal Facility. The EMWMF accepts waste generated by activities on the Oak Ridge Reservation (ORR) and other sites which are owned by the Department of Energy (DOE). Mr. Martin was tasked with observing remedial action operations at EMWMF for conformance with the requirements of the Record of Decision (ROD) and other supporting documentation; the operation of the waste disposal unit; and assessing the data collected in support of operations for demonstration of compliance with the requirements of the ROD and operations documentation. Mr. Martin conducted the on-site audit over a one week timeframe. As part of the scope of work, Mr. Martin developed a field audit checklist and prepared an Audit Report describing the key findings of the audit.

Remedial Construction, Remediation Investigation, and Remedial Design, Shell Oil/ Valero/BP, Hartford, IL

From 2003 to 2006, Mr. Martin served as a senior project engineer on a continuous basis for over two years on the large-scale investigation and design for the remediation in the Village of Hartford, Illinois. Past operations from several adjacent refineries and operating underground pipelines have contaminated the soil and groundwater beneath the village. Petroleum (LNAPL), soil contamination, groundwater contamination and soil vapor intrusion issues exist over multiple acres within the limits of the village. Mr. Martin was conducting investigation and remediation work in the Village of Hartford and the adjacent oil refinery for a working group of oil companies identified as PRPs for the contamination. The work was being conducted under RCRA for USEPA Region 5 under an AOC. A summary of the project can be found on EPA's website: http://www.epa.gov/region5/sites/hartford/. Mr. Martin was responsible for the following:

- Engineering evaluation of the existing SVE system. The existing SVE system and flare, installed in 1991, included 12 SVE wells, associated monitoring wells and connected by an extensive piping network and vaults throughout the northern portion of the Village of Hartford. After a thorough field evaluation of the existing SVE equipment. Mr. Martin prepared a report describing the current problems and recommended system upgrades. SEPA and Illinois EPA approved this RCRA Corrective Action and the upgraded system was installed in late 2004 -- early 2005 and included; over a mile long network of new HPDE piping and vault boxes, replacement of the existing 12 SVE wells, new well configurations, new monitoring wells, new SVE equipment (blowers, etc.) and a new treatment system (thermal oxidizers). Mr. Martin completed remedial construction oversight of the upgrade activities and managed construction activities.
- Treatability design including SVE pilot testing. Planned, permitted, performed and prepared final reports on SVE reports on multiple locations within the Village of Hartford. The pilot tests lasted up to two weeks. Pilot testing was performed on individual wells with a series of vapor monitoring wells to gauge vacuum influence: Multiple air treatment alternatives were also tested including activated carbon, catalytic and thermal oxidizers. Mr. Martin performed both the field pilot testing, collected samples, laboratory coordination and also prepared the final reports describing the activities and summarizing the conclusions.
- Treatability design including Multi-phase Extraction (MPE) pilot testing. Planned, permitted, performed and prepared final reports for two "bioslurping'" pilot tests at three locations within the Village of Hartford. Pilot testing was performed on individual wells with a series of monitoring wells to gauge vacuum influence and LNAPL levels. Multiple air treatment alternatives were also tested including activated carbon, catalytic and thermal oxidizers.
- Treatability design including additional MPE pilot testing performed on 19 existing wells with LNAPL in Hartford, Illinois using a portable unit. This testing was done using mobile MPE system to extract LNAPL from each well. Testing accomplished vacuum-enhanced fluid recovery by applying negative pressure to a well via a stinger pipe set at or near the LNAPL surface. Air was treated using a combustion engine. Also completed two dual-phase extraction (DPE) pilot testing using this mobile unit. The DPE pilot tests were specifically designed to create a groundwater cone of depression in the formation surrounding the extraction wells while simultaneously applying vacuum to the formation via the extraction well.

- Planned, performed and prepared a final report on pilot testing of conventional free product recovery via air-driven skimming pumps. Pilot testing was performed on individual wells with a series of monitoring wells to gauge LNAPL levels. Continued to run these pumps and document recovery as an interim remedial measure.
- Evaluated existing process wells for groundwater gradient control. Prepared the report describing proposed gradient control measures via production well pumping at the site for submittal to Illinois EPA.
- Sampling assessment and lab coordination of a core sample program to analyze for LNAPL recoverability within differing geological and hydrogeological settings. The frozen in-the-field core samples were photographed by a laboratory under natural light to identify changes in soil lithology and under ultraviolet light, which caused petroleum hydrocarbons to fluoresce. After photograph review, specific sample intervals were identified for various laboratory tests including soil-fluid interaction properties such as water/LNAPL saturations, air/water drainage capillary pressure and free-product mobility by comparing water and LNAPL saturations before and after a plug was centrifuged.
- Assisted in characterizing of site stratigraphy using Cone Penetration Testing (CPT) and detecting and characterizing LNAPL using the Rapid Optical Screening Tool (ROST). Mr. Martin was tasked with screening all available site characterization techniques and recommended using the CRT/ ROST technology to assess the multiple petroleum free-phase products within multiple stratigraphic units at the site.
- Managed and actively participated in preparation of a FS of remedial alternatives and conceptual remedial design for the site using extensive site assessment data, multiple pilot tests and other information gathered over years of work at the site. The evaluation focused on protectiveness, short-term effectiveness, long-term effectiveness, implementability, community impact and cost.

NPDES Compliance & Construction Inspection Services, Illinois Department of Transportation (IDOT), Chicago Metro Area, IL

For the construction year 2008 was the Senior Environmental Engineer providing construction auditing of IDOT to ensure that construction projects in Illinois District 1 are compliant with applicable federal, state and local environmental regulations and requirements, including NPDES permits. Responsible for conducting erosion and sediment control inspections on more than 15 projects, including bridge replacements and *roadway* reconstruction. Prepared a comprehensive audit report providing recommendations to IDOT for NPDES program improvements.

Environmental Compliance & Construction Inspection Services, Illinois State Toll Highway Authority (ISTHA), Chicago Metro Area, IL

From 2006-2008 was the Senior Environmental Engineer supporting ISTHA to ensure that construction projects are compliant with applicable federal, state and local environmental regulations and requirements. Responsible for conducting erosion and sediment control inspections on more than 20 projects, including bridge replacements, Open Road Tolling (ORT) reconstruction, and construction of the new Interstate 1-355 extension. Conducted inspections to identify items or areas that are out of compliance with contract specifications or do not provide satisfactory protection to the public or the environment. Examined the project areas for conditions such as evidence of sediment erosion, improper and insufficient ditch checks, ditch checks

requiring maintenance, insufficient dust control, insufficient track-out control, improper pumping and discharge of ponded water, inadequate topsoil preparation, sediment discharge to surface water, temporary and permanent seeding methods, and insufficient inlet protection. Documented the inspection findings in inspection reports. Responsibilities also include providing guidance on solving identified erosion and sediment control problems based on knowledge and experience of the application and limitations of erosion and sediment control methods. Discussed items requiring attention with construction personnel to develop a remedy and implementation schedule. Conducted follow-up inspections to verify resolution and closure of identified issues. Reviewed project erosion control and landscaping plans and special provisions on behalf of ISTHA.

In addition, provided ISTHA with general technical support to address a range of environmental technical issues, including:

- Updated and revised the ISTHA environmental manual.
- Serve as a liaison between construction field personnel and the ISTHA landscape architect to address landscaping issue such as tree and grass seed selection, planting methods, planting schedules and tree inspections.

Remediation of Soil Using Indirect Heat Volatilization of Chlorinated Solvents, Centrum Development LLC, Chicago, IL

In 2002, Mr. Martin was responsible for TACO Tier 2 modeling and preparation of a comprehensive Site Investigation and Remediation Objectives Report under Illinois EPA's SRP. This project involved remediation of an industrial property in Chicago. Historical operations at the property included a plating operation that used chlorinated solvents. Investigations of the property indicated the presence of trichloroethene (TCE) and tetrachloroethene (TCA) impacts to soils above their respective Soil Saturation Limits (SSL). The highest TCE concentration detected was 63,000 milligrams per kilogram (mg/kg). Utilized an Indirect Heat Volatilization Unit (IHV) to remediate the impacted soils. The IHV is a self-contained, steam stripping thermal processing unit. All treatment was conducted in a close-looped system without any air emissions. Based on the completed soil remediation, site closure was secured in accordance with the Illinois EPA SRP to facilitate residential development of the property.

SPCC Plan Development, Qwest Communications, Multiple Sites, East Coast

In 1999, developed Spill Prevention Control and Countermeasure (SPCC) plans for 10 backup generators (and associated ASTs) at 10 communications equipment locations on the East Coast.

Environmental Due Diligence Evaluations, Applebees, IN

In 1998, Mr. Martin was the project manager responsible for conducting environmental due diligence evaluations at 19 Applebee's restaurants in Indiana. The evaluations included Phase I ESAs at all the facilities in short time frame (less than one month) including preparation of written reports. In addition, project activities included detailing the areas of environmental deficiencies, developing corrective action costs and time schedules to correct the problems and, ultimately, assisting the client in resolving the environmental issues.

UST-LUST Remediation/Cost Evaluation Checklist, Multiple Sites, Puerto Rico

In 2011, Mr. Martin developed a LUST Site Checklist and Site Summary for use in documenting TechLaw's review of LUST records in Puerto Rico. As part of reviewing LUST records for 88

sites in Puerto Rico and in order to meet the project requirement of estimating the level of effort needed to remediate each LUST site, Mr. Martin developed a spreadsheet with imbedded calculations that allowed for gross estimates of future investigation and remediation costs, and costs associated with the preparation of future reports that the site owners will need to prepare to meet regulatory requirements. By developing an up-front checklist and cost calculator, Mr. Martin was able to save critical time in reviewing the LUST records in the field and provide a defensible and standardized method for comparing future investigation/remediation costs for each site.

EPA/General Motors RCRA Remedial Costing Support, Multiple Sites

Over the course of 2010-2011, Mr. Martin worked with EPA Region 5 under the REPA Zone 2 Contract evaluating remedial cost estimates and demolition activities related to the bankruptcy of General Motors. These old, and often massive, General Motors facilities with a long legacy of environmental issues are undergoing remediation and demolition across the Midwest. Under a heavy push to initiate and even complete remedial projects as soon as possible, Mr. Martin has been involved in evaluating remediation budgets and demolition processes for these often complicated and challenging sites. These remedial and waste management cost estimates were used in critical negotiations between EPA and GM to fund cleanups at sites across the Midwest.

Site Investigation and Closure, Agricultural Industry, GROWMARK/Corn Belt FS, Inc., Wapella, IL

During 1996, Mr. Martin served as project manager for an investigation of an active agricultural chemical facility in accordance with Illinois TACO regulations under the Illinois SRP to obtain a focused No Further Remediation (NFR) Letter for the property using Tier 1, 2, and 3 evaluations to facilitate closure of the site. Site investigation activities included soil borings, monitoring wells and background soil sampling from adjacent farm fields. The Tier 3 evaluation focused on the background nitrate/nitrite concentrations found "over the fence" in an adjacent farm field compared to on-site conditions. In addition, the Tier 3 evaluation proposed using a degradation constant for specific pesticide compounds in site soils and groundwater to allow for realistic TACO modeling.

Site Remediation – LUST site, Agricultural Industry, GROWMARK/Christian County FS, Inc., Pana, IL

In 1995, Mr. Martin served as project manager on a LUST remediation project under Title XVI. This project involved underground storage tank (UST) removals, soil remediation via landfilling and groundwater monitoring. Mr. Martin met with the client and Illinois EPA to address off-site impacts and to facilitate project closure. Project activities also included a 45-day report to the Illinois EPA and Corrective Action Completion Report. The Illinois EPA subsequently issued a No Further Action letter for the site.

Oil Pipeline Releases, Petroleum Industry, UNOCAL, Olney, IL

Over the course of 1998-2000, Mr. Martin served as project manager on two-(2) crude oil pipeline releases in remote sites in southern Illinois. Both sites were Illinois EPA's Pre-Notice Program sites which were subsequently enrolled in Illinois EPA's SRP. Both sites had multiple monitoring wells with up to 10 feet of free-phase product. Mr. Martin oversaw remediation of both sites including a solar-based product pumping system at one site.

Remediation using groundwater pump and treat, BMJ Development L.P., Bloomington, IL

Over the course of 1997-2000, Mr. Martin served as project manager on a petroleum remediation site. The site was closed under Illinois EPA's SRP after originally being part of the old Illinois EPA's "Pre-Notice" program. Site activities included investigation, installation of a groundwater pump and treat system during re-development of the property (gas station to restaurant), operation of the remediation system, supplemental application of Oxygen Releasing Compound (ORC). Site closure was achieved by submitting a Focused Remedial Action Completion Report under Illinois EPA's SRP describing all site activities from initial investigation through final remediation.

Property Transaction Evaluation, Agricultural Industry, Land O'Lakes, Inc., OH and IN

In 1998 and 1999, Mr. Martin served as project engineer in performing limited Phase II ESA investigations at more than 10 retail agronomy centers (bulk fertilizer and pesticide storage facilities) in Ohio and Indiana. Most sites had multiple environmental issues including petroleum USTs, ASTs, bulk dry fertilizer storage, bulk liquid fertilizer storage/handling, a pesticide storage/handling and on-site water wells. These investigations were a hybrid Phase I/Phase II ESAs to assist the client in determining whether to acquire each facility.

LUST Site, University of Illinois, Monticello, IL

In 1997, Mr. Martin served as project manager on a LUST remediation project under Title XVI. This project involved UST removals, soil and groundwater monitoring. Project activities also included a 45-day report and Site Classification Completion Report. The Illinois EPA subsequently issued a No Further Action (NFA) letter for the site. Mr. Martin was subsequently requested by the university to submit a qualifications package to provide environmental and technical services on an as needed basis. After Mr. Martin submitted the requisite application and made a presentation to the university, the contract was awarded.

Remediation, Oil Blending Facility, UNOCAL, Chicago, IL

In 2001-2002, Mr. Martin was the project manager overseeing the remediation of a portion of a former oil blending and packaging facility located in Chicago, Illinois. Activities including sampling and lab coordination. The former facility had been operated as an oil blending and packaging business since 1913. Initial activities included the demolition of the chemicals building's frame, including removal of all the walls, wood floor, support beams, and roof. Following the demolition of the building's walls and floor, demolishing the concrete basement as well as the footings were completed. Led the soil investigation and sampling prior to soil remediation activities. A number of soil samples were found to contain contaminants at concentration levels exceeding Tier 1 soil remediation objectives for industrial / commercial property. The contaminants of concern included: ketones, petroleum hydrocarbons, chlorinated solvents, naphthalene, arsenic and lead. Remediation activities included the excavation of contaminated soil and then the backfilling and compaction of the excavated areas. Remediation activities also included removal of railroad tracks, tank saddles, and associated piping. Over 9,000 tons of impacted materials were removed from the property. The excavation was backfilled and compacted with a silty clay material. The use of compacted silty clay material was done in an attempt to prevent the area from becoming recontaminated from the ongoing neighboring operations. The Site was graded to allow for proper drainage and covered with approximately six (6) inches of topsoil and hydro-seeded with grass seed.

Site Investigation/Remedial System Review, Former Chrome-Plating facility, Amsted Industries, Chicago, IL

In 2004-2005, Mr. Martin was the project manager of an investigation of a diesel locomotive engine crankshaft re-conditioning and chrome-plating facility in Chicago, Illinois which dated to 1959. The investigation was performed to further define the extent of chromium and other constituents in soil and perched water beneath the facility building and confirm and further evaluate the site geology and hydrogeology. Mr. Martin led the collection of soil and groundwater samples. In addition, Mr. Martin conducted an engineering evaluation of the existing sub-slab groundwater pumping system, made modifications to the system including new pumps and flow meter installation. Mr. Martin also prepared responses to a violation notice issued by Illinois EPA for a spill during building de-commissioning activities. The site is currently enrolled in Illinois EPA's SRP.

Phase I/ Phase II ESA, The Eureka Company, Normal, IL

In 1999-2000, Mr. Martin was the project manager of a combined Phase I/Phase II ESA investigation of a former vacuum cleaner manufacturing facility in Normal, Illinois. Mr. Martin led the sampling, lab coordination and investigation portions of the project. Multiple areas of concern were identified in initial stages of the Phase I ESA, including paint and chemical storage areas, former UST locations, and equipment cleaning areas in the facility which led to a scope expansion to complete a Phase II ESA in an expedited manner. Phase II ESA activities included soil borings inside and outside the manufacturing plant. Chlorinated solvents at concentrations above IEPA Tier I SROs were identified in soils near several of the equipment cleaning areas. The site was subsequently enrolled in the Illinois SRP program.

LUST Site/Detention Area Remediation, UNOCAL, Bloomington, IL

In 1995, Mr. Martin served as project manager on a LUST remediation project under Title XVI. Mr. Martin performed sampling, lab coordination and report preparation activities. This project involved UST removals and groundwater monitoring. The Illinois EPA subsequently issued a No Further Action letter for the site. Additional voluntary action by the client included remediation of a detention pond which received storm water runoff from the vast parking area at the truck stop and had accumulated petroleum contaminants in the sediment of this pond. Removal of the sediment was accomplished by dewatering the pond (with a NPDES permit) to the adjacent creek and removing sediment to a landfill. In order for the soils to pass the landfill paint filter test, the sediments had to be mixed on-site with fly ash.

Pipeline Release Remediation - Clinton Lake, Shell Oil, Clinton, IL

From 1998-1999, Mr. Martin served as project manager on an Illinois EPA SRP site adjacent to Clinton Lake in Illinois. A petroleum pipeline release had impacted soil and groundwater in close vicinity to the lake. Previous remedial approaches prior to Mr. Martin's involvement included an SVE system which operated for approximately 3 years and was shut-down concentration levels decreased and installation of ORC "socks" in monitoring wells in an attempt to remediate residual petroleum. Subsequently free-phase product began appearing in on-site wells. Mr. Martin oversaw a more aggressive remedial effort, which included a biodegradation process with active injection (BiOx Process).

During the injection process, Mr. Martin managed on-site remedial activities including groundwater and surface water sampling. A point of concern was the development of petroleum

sheens on the lake water caused by injecting fluids near the lakeshore where groundwater is shallow. Mr. Martin had observed during past sediment sampling events that sheens have developed within the sampling holes as groundwater was encountered. As a precautionary measure, petroleum absorbent booms were deployed prior to beginning injection activities. In addition, petroleum absorbent materials were on-hand to clean up sheens that might develop. BiOx solution was observed seeping up through shoreline soils as the injection process neared the edge of the rip-rap bank; however, no petroleum sheens developed.

LUST Removals, Illinois State University, Normal, IL

In 1997, Mr. Martin served as project manager on a LUST remediation project under Title XVI. This project involved fuel oil UST removals, soil sampling and groundwater monitoring. LUST removals were complication by the USTs being encased in concrete. Project activities also included a 45-day report and Site Classification Completion Report. The Illinois EPA subsequently issued a No Further Action (NFA) letter for the site.

LUST Removals, Multiple Industries

Of the course of 1994-2006, Mr. Martin has participated in over 50 LUST site investigations, classifications, and/or remediation efforts for a variety of corporate and individual clients over the course of his career. Mr. Martin has been involved in all aspects of the LUST regulatory process including be involved such duties as: subcontractor selection, oversight, project performance tracking, regulatory agency interface, investigation, remedial option selection, and reporting. This work involved such sites as: retail service stations, food stores, manufacturing facilities, corporate farms, and oil/chemical refineries.

Phase I ESAs, Multiple Industries

Over the course of 1994-2010, Mr. Martin participated in over 100 Phase I ESAs for a variety of industrial, legal, financial, and private clients that covered several different types of sites, including light/medium/heavy industrial, commercial, and residential properties. Focused efforts on buyer, seller, or lender standpoints, as desired/required. Many projects involved continuation of the evaluation process to Phase II and Phase III levels.

CERTIFICATIONS

- Professional Engineer
- Certified Professional in Erosion and Sediment Control

PUBLICATIONS/PRESENTATIONS

IDOT Seminar presentation: "Erosion and Sediment Control: A Review of the 2008 Construction Program and the Path Forward" (2009)

EMPLOYMENT	TechLaw, Inc.	Senior Consultant	2009 - Present
	Bloom Companies	Senior Environmental Engineer	2008 - 2009
	RM Chin and Associates	Senior Project Manager	2006 - 2008
	Clayton Group Services	Senior Project Manager	2001 - 2006
	Terracon, Inc.	Project Manager	1994 - 2001
TRAINING/ CERTIFICATIONS	➢ 40-hr OSHA Hazardous Waste Operations training; ➢ ICS Levels 100, 200 ➢ Confidential Business Information (CBI) Training (2011); ➢ USACE Construction Quality Management (CQM) training (2009); ➢ FHWA MOVES Air Quality Course (2008); ➢ IDOT Documentation of Contract Quantities Certification (2008-2012); ➢ IDOT ICORS training (2009); ➢ ISTHA Proliance Training Corps Wetland Delineation Manual training (2007)		

Karla Brasaemle

PROFESSIONAL EXPERIENCE	Total Years' Experience: 27 Years with TechLaw: 12
EDUCATION	MS, Geophysics, University of Minnesota, 1988 B.S., Physics, Case Western Reserve University, 1980

QUALIFICATIONS

Has reviewed hundreds of technical documents pertaining to hydrogeology, geophysics and groundwater modeling

Ms. Brasaemle has provided extensive support for remediation management and oversight activities at a variety of federal facility and private sites. Her expertise includes the design, management, and coordination of hazardous waste investigations involving geophysics and surface water/ground water contamination. She also provides consulting to the EPA for environmental issues related to military base closures.

RELATED EXPERIENCE

Site remediation oversight has identified issues overlooked by remedial contractors and facilitated project completion

- Served as a technical lead for Edwards Air Force Base (ROC3 Region 9) and project manager since May 2008. Coordinated review teams, delivering more than 100 high-quality deliverables a year. These deliverables are forwarded to the Air Force with little to no revision. Attends RPM and technical meetings, providing input on hydrogeology, geophysics (including for MMRP sites), groundwater models, and other technical issues. Identified issues that have been overlooked by the Air Force and their contractors, providing value-added technical input to EPA.

Thoroughly knowledgeable of the entire CERCLA process

- For Adak Naval Air Station, provided reviews for groundwater reports, feasibility studies, geophysical prove-out documents, and Munitions and Explosives of Concern (MEC) removal documents, including Quality Assurance Reports for MEC surveys and removals.
- For the Idaho National Laboratory, served as technical lead, providing QC reviews of groundwater, MEC, Institutional Controls Work Plans, and general documents.
- Stauffer Chemical Site (EPA Region 4), organized team to write the Amendment to the 1993 Record of Decision for Operable Unit 3, Cold Creek Swamp, Stauffer Chemical (Leymoyne Plant) and Stauffer chemical (Cold Creek Plant), National Priorities List Superfund Sites, Mobile County, Alabama. Edited final deliverable for content, consistency and compliance with CERCLA and EPA guidance. The TechLaw team was able to write this ROD amendment within the allocated budget and submit it to EPA in seven business days from receiving the notice to proceed.
- Alameda Point (ROC 3 Region 9), served as project manager since 2001, coordinating review teams to produce more than 30 high-quality deliverables in the past year. Provided EPA with assistance in overseeing remedial investigations, treatability studies, feasibility studies, and groundwater monitoring at two former landfills, various sites with contaminated sediments, solvents, PCBs, pesticides, BTEX, PAH, and metals contamination. Also selected water quality assessment methodologies and analytical methods for verification of an in situ chemical oxidation treatability study. The EPA COR commented for the Award Team I performance evaluation,

"The hugely varied nature and schedule for reviews of all the documents this past year has been managed perfectly by the contractor."

- For the EPA ROC in Region 9, serves as senior project manager for the ROC III Region 9 contract and as project manager responsible for managing five projects involving oversight of all aspects of cleanup and closure of former military bases and three DOE sites. Also serves as the hydrogeologist responsible for reviewing geology, hydrogeology, and contaminant transport. Assists EPA in review of documents for compliance with policy and regulations. Work involves evaluation of environmental policies, guidance and regulations. Also participates in meetings with military, regulatory agencies, and consultants.

- For the Hunters Point Shipyard, has served as project manager for 19 years, providing EPA with assistance in overseeing remedial investigations, treatability studies, feasibility studies, remedial actions, and removal actions for a wide variety of sites, including a former industrial landfill, a debris disposal area, former oil ponds, dry docks, off-shore sediments, and various industrial sites with chlorinated solvent, metals, PCBs and other contamination. Reviewed storm water control plan and inspected storm water controls for a former landfill.

- For the Sacramento Army Depot in California, has served as project manager for 18 years providing EPA with technical assistance overseeing remediation at this former Army facility, including consolidation of wastes in a Correction Action Management Unit. Recent work has involved providing reviews of groundwater models and assessing strategies to remediate an off-site groundwater contaminant plume.

- For the Former U.S. Disciplinary Barracks in California, served as project manager and technical expert providing EPA with technical assistance in overseeing investigations and remediation at this Federal Correctional Complex. Conducted post-construction inspection of the Wood Dump Landfill. Also provided policy and regulatory guidance to the closure team.

- Served as project manager for the final four years of the remedial investigation of the East Industrial Operable Unit at Travis Air Force Base, California. Designed and implemented quality assurance/quality control program for final phases of field investigation, including evaluation for the closure of two landfills. Oversaw final phase of field-work, including wetlands delineation, soil and groundwater sampling, and treatability studies, as well as preparation of the remedial investigation report. Also participated in innovative technology study to explore an alternative method for installing an iron filings reaction wall. The client was the U.S. Air Force Center for Environmental Excellence.

- Served as project manager for an evaluation of the environmental conditions and hazards for seismic retrofitting of highway bridges in Monterey and San Benito Counties, California for CALTRANS. Conducted and supervised field assessment of environmental conditions, including evaluation of lead-based paint, surface-water runoff, and flood zones for 15 bridges.

- Served as technical manager/zone manager for investigation of multiple sites at Pease Air Force Base involving BTEX and halogenated solvent contamination. Coordinated site investigation planning, preparation of field sampling plans; and sampling programs, including selection of water quality assessment methodologies and water quality analyses. Analyzed data to determine the extent of non-aqueous phase liquids (NAPLs) at a fire training area and managed a team of 27 persons in preparing the Remedial Investigation Report and Feasibility Study for Zone 5 at Pease, which also included the Construction Rubble Dump. Also assisted with management

and preparation of Remedial Investigation and Feasibility Study reports for two other zones. The client was the U.S. Air Force Center for Environmental Excellence.

- For the U.S. Army, conducted site inspection, interviews, historic research and data analysis to assess 45 potential hazardous waste sites at Fort Monmouth (New Jersey), as well as two sub-installations in preparation for the Installation Restoration Program.

- At the Tri-Cities Barrel Superfund Site in New York, designed initial investigation. The contents of the drums were apparently discharged behind a building and ran down a hillside into a stream.

- For the New Jersey Department of Environmental Protection, served as project manager for an investigation of the High Point Landfill, a closed municipal facility. Designed and implemented geophysical investigations, surface water and sediment investigations, and groundwater monitoring systems to investigate shallow and deep groundwater contamination, and to evaluate the cause of differential settlement of the landfill cap. Selected groundwater and surface water assessment methodologies and water quality analytes. Conducted surface water sampling after storm events to evaluate seeps from landfill. Designed and implemented a field program with multiple drilling rigs and implemented a sedimentation control program to control erosion and sediment load in surface water run-off from drilling operations and artesian wells. Wrote Remedial Investigation Report and part of the Feasibility Study Report.

- Performed Phase I environmental assessments to evaluate the environmental conditions for real estate transactions at various locations in California, Pennsylvania, New Jersey, and Maryland. Also performed Phase II environmental assessments when sampling and/or geophysics were necessary.

- Conducted sampling to evaluate the extent of PCB sampling and geophysics and thereby assess the extent of buried waste at six gas transmission pipeline stations in Pennsylvania. Also analyzed borehole geophysics and down-hole video to evaluate the potential for contaminant transport in bedrock fractures.

- At various locations in Pennsylvania, New Jersey, Maryland, and Virginia, conducted geophysical surveys and analyzed geophysical data to evaluate potential for buried waste along highway construction sites, a former sand quarry, a rock quarry, a farm being developed as a corporate office park, a thorium disposal site, and at other locations where underground tanks were suspected.

- At the Army Creek Landfill in Delaware, managed analytical and groundwater elevation databases for ongoing groundwater monitoring programs.

Ms. Brasaemle has experience planning and overseeing defensible field sampling programs to ensure data integrity. She has developed and assessed field sampling programs, including conducting field quality control audits, for DOD/DOE sites including Travis AFB, Pease AFB, Hunters Point Shipyard, Alameda Point, Sacramento Army Depot, the Laboratory for Energy-Related Health Research, Lawrence Livermore National Laboratory Main Site and Site 300, and McClellan Air Force Base.

Ms. Brasaemle has also developed defensible field sampling programs for NPL sites like the Ellis Property Site, Omega Chemical Corporation Site, and Tri Cities Barrel and for state and private facilities.

Examples of this experience include the following highlights:

- For Hunters Point Shipyard, developed audit forms and conducted field audits of the groundwater sampling program, removal actions and remedial actions.
- For Alameda Point, developed audit forms and conducted a field audit of the groundwater sampling program and a Treatability Study for application of Fenton's reagent to chlorinated solvent plumes.
- For Travis Air Force Base, developed an audit program and conducted field audits of environmental sampling activities.
- Reviewed sampling plans and QAPPs to ensure data integrity and data quality objectives (DQOs) based on EPA's Guidance on Systematic Planning Using the Data Quality Objectives Process (QA/G-4), Guidance for Quality Assurance Project Plans (QA/G-5), EPA Requirements for QA Project Plans (QA/R-5), and Guidance for Data Quality Assessment (EPA QA/G-9) as well as the new UFP-QAPP guidance. Ensured sampling plans, QAPPs and DQOs were sufficient to evaluate environmental contamination.
- Revised regional Quality Management Plan and served as region QA officer.
- For EPA Region 9, developed sampling plan and QAPP to evaluate whether lead paint flaking off buildings resulted in lead-contaminated soil. Oversaw field investigation, including field sampling and field laboratory for this investigation, which was conducted at the Presidio of San Francisco, Mare Island Naval Shipyard, Moffett Federal Air Field and Mather Air Force Base.
- Developed field sampling plans and QAPPs for the Ellis Property Site, Tri Cities Barrel, and High Point Sanitary Landfill.

PROFESSIONAL REGISTRATIONS

- Registered Geologist, State of California, 1995;
- Registered Professional Geologist, Commonwealth of Pennsylvania, 1994;
- Registered Professional Geologist, State of Arkansas, 1991

EMPLOYMENT	TechLaw, Inc.	Expert Consultant	2001 - Present
	Roy F. Weston, Inc.	Senior Project Manager Project Manager Senior Project Geoscientist Project Geoscientist Associate Geoscientist Assistant Geoscientist	1988 - 2001
	Robinsdale School District, Minnesota	Earth Sciences Curriculum Consultant	1986 - 1987

TRAINING/ CERTIFICATIONS	➢ Confidential Business Information (CBI) Training; ➢ NWWA Groundwater Short Course, 1991; ➢ Certified in radiation safety and monitoring and use of the Niton XRF Spectrum Analyzer; ➢ OSHA, Site Health and Safety Supervisor; ➢ 40-hr Hazardous Waste Site Training Course; ➢ OSHA 29 CFR 1910.120(e)(3); ➢ Certificate in Computer Information Systems: Analysis, Design and Management, University of California at Berkeley

Mike Smith

PROFESSIONAL EXPERIENCE	Total Years' Experience: 33 Years' Experience Supporting EPA contracts: 22 Years with TechLaw: 13
EDUCATION	M.S., Mechanical Engineering, Georgia Institute of Technology, 1989 B.M.E., Mechanical Engineering (High Honors), Georgia Institute of Technology, 1980

QUALIFICATIONS

Expertise with risk assessment and air modeling

Mr. Smith provides technical, and management support for remediation activities at a variety of sites, predominantly throughout EPA Regions 2, 4, 5, 6, 8, 9 and 10 in addition to other clients nationwide.

Specific examples and responsibilities include the following:

Provided permitting support for Utah DEQ

- Provided support for risk assessment and air modeling projects under a Utah Department of Environmental Quality (UDEQ) contract, including the Promontory HHRA Work Plan, Chicken Creek Air Modeling, Alton Coal Air Monitoring, Air Dispersion Modeling, and OBODM Model Evaluation and AERMOD Modeling Evaluations.

Conducts risk assessments for Hazardous Waste Combustion facilities

- Provided support to the Utah Department of Air Quality (UDAQ) under a UDEQ Contract including evaluation of facility-specific RACT analyses and air modeling protocols for particulate retention in quarry pits.
- ROC Region 4 – At the request of EPA Region 4, provided meeting support regarding soil and groundwater issues at a Department of Defense (DOD) site including evaluation of the vapor intrusion exposure pathway.
- START Region 10, Task Order 025 - At the request of EPA Region 10, performed technical reviews of air permits and stack performance tests to support the preparation of a Notice of Violation against a chemical manufacturing facility. Provided meeting support on site emissions for meetings with Department of Justice staff and facility representatives.
- Project R06028, Risk Analysis - Hazardous Waste Combustion Facility – Veolia, Port Arthur, Texas - Served as technical lead on a combustion risk assessment for EPA Region 6. Characterized emission sources and quantified stack emission rates. Performed air dispersion and deposition modeling of the stack with AERMOD. Authored air dispersion modeling task report and co-authored risk assessment report. Successfully managed the integration of AERMOD modeling results and results from EPA's RiskMAP software into a risk assessment exceeding the requirements of the EPA risk assessment methodology outlined in the Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities.
- Project R06016, Combustion Risk Assessment for PPG Industries — Served as technical lead on a combustion risk assessment performed for EPA Region 6. Successfully addressed issues related to EPA-developed risk assessment tools used during the project so the analysis could be completed efficiently and on time.
- Project R04007, Task 2, Combustion Risk Assessment for First Chemical, Inc. Served as

technical lead on a combustion risk assessment performed for EPA Region 4. Successfully addressed issues related to application of EPA's Risk-MAP software, making TechLaw the sole RCRA contractor capable of applying the software without EPA assistance.

- Task Order 03042.0.003, Combustion Risk Assessment Support — At the request of EPA Region 2, developed a summary of the EPA-recommended approach for performing a risk assessment on an open detonation unit under RCRA Subpart X. The summary document incorporated EPA-preferred approaches to issues that historically prevented Picatinny Arsenal from developing an acceptable risk assessment protocol.
- Permit Support, New Mexico Environment Department, Technical Staff. Supported the New Mexico Environment Department in negotiations for the RCRA permitting of an open burning operation at the Los Alamos National Laboratory. Reviewed facility air modeling submittals, performed screening level air modeling and risk analyses. Presented results to stakeholders. Advised state permit writers on issues related to process emissions and air dispersion modeling.
- Risk Assessment for Hazardous Waste Combustion Facility, REPA 4 Zone 2, Technical Staff — For EPA, directed the air dispersion modeling task of a risk assessment for a chemical plant located in Region 4. EPA's preferred air model, AERMOD, was used to determine air concentrations and deposition fluxes for use in the risk assessment. Also estimated emission rates for over 60 sources off fugitive emissions at the site.
- Multi-Site Permitting Support, REPA 4 Zone 2, Technical Staff — For EPA, reviewed facility air dispersion modeling and emissions analyses for five facilities seeking RCRA permits under Subpart X in EPA Region 4. The majority of the air modeling analyses utilized OBODM, an EPA alternate model for predicting impacts from open burning and detonation (OB/OD) operations. Reviewed accompanying emissions analyses for proper identification of emitted constituents and accurate estimate of emission rates.
- Served as the TechLaw Task Order Manager under the Region 4 Regional Oversight Contract (ROC) for the Paducah Gas Diffusion Plan, the Marine Corps Air Station at Cherry Point, Camp Lejeune, and Oak Ridge ETTP. Under the Region 4 RCRA Enforcement, Permitting, and Assistance (REPA) contract, served as the TechLaw Work Assignment Manager (WAM) on numerous hazardous waste combustion facilites and Subpart X work assignments. In this role, coordinated the activities of TechLaw Region 4 task order and work assignment staff. Maintained communication between TechLaw staff and appropriate EPA personnel to provide the coordination necessary for technical, budgetary, and contractual functions.
- Assessed technical documentation on the fate and transport of contaminants in the Bandelier Tuff at a DOE facility for NMED. Further, supported NMED by serving on a Department of Energy technical advisory group on the selection of a suitable remedial option for a specific area at the facility.
- Reviewed indoor air assessments, including sampling requirements and application of the Johnson and Ettinger Model at RCRA and CERCLA sites in EPA Regions 4 and 9. For EPA Region 5, applied the Johnson Ettinger Model in a residential area impacted by a RCRA-regulated facility.
- Led a team that developed a project plan for a multi-media risk assessment at a hazardous waste combustion facility in EPA Region 4. The plan encompassed human health and

ecological assessments.

- Served as Work Assignment Manager and performed technical and completeness reviews of risk assessment and air dispersion modeling protocols for hazardous waste combustion facilities located throughout EPA Region 4. Also reviewed risk assessment protocols and risk assessment reports for EPA Region 5
- Performed the air dispersion modeling for a multi-stack facility in EPA Region 2 and the air dispersion modeling and emission rate calculations for hazardous waste combustion facilities in EPA Regions 4 and 6. These facilities featured elevated terrain and multiple sources. The results were used in multi-pathway screening risk assessments required as part of the RCRA permitting process.
- Modeled the air emissions from hypothetical spill incidents to aid in planning the appropriate response actions as part of a RCRA Model Contingency Plan.
- Performed the air dispersion modeling and emission rate calculations for nine hazardous waste incinerators at a chemical agent demilitarization facility. The results were used in an assessment of the risks associated with direct and indirect exposure routes.
- Reviewed the air dispersion modeling results generated by COMPDEP for the WTI incinerator. Further, reviewed the modifications to the ISC/COMPDEP air dispersion model for accuracy and applicability to the WTI incinerator.
- Performed the air dispersion modeling to determine the off-site impact from air releases generated by heavily contaminated soil for a site affected by a Corrective Action Stabilization Initiative.
- Presented information on air dispersion modeling for hazardous waste combustion facilities as part of the EPA Region 4 RCRA Combustion Risk Assessment Information Forum and the EPA Region 4 RCRA Combustion Risk Assessment Training.
- Reviewed human health risk assessments and the derivations of risk-based media protection standards performed by industrial facilities under RCRA corrective action.
- Also reviewed fate-and-transport modeling in CERCLA risk assessments performed by federal facilities in EPA Region 6.
- Performed technical document reviews of numerous corrective action documents, including RCRA Facility Investigation (RFI) work plans, RFI reports, baseline risk assessments, and interim measure studies.
- Performed lead deposition modeling of a facility for Region 5 using ISCST3. Stack and fugitive emissions were addressed through application of point, volume and area source algorithms. The results confirmed which source was responsible for the majority of off-site impacts and showed that the facility contributed to elevated lead levels in soils just beyond the facility boundary.
- Performed the exposure assessment for an endangerment assessment of a dump site under CERCLA, including computer modeling of contaminant migration from the site. The analysis encompassed the risks associated with a variety of exposure pathways and the populations impacted by the paths.

Mr. Smith has had extensive experience with performing regulatory activities for agencies such as

EPA and is familiar with permitting conditions and training materials, as well as Subpart X (e.g., open burning/open detonation regulations). He has also conducted applied research on alternate energy sources and in-situ environmental remediation techniques.

Highlights of this experience include:

- Supported NMED and UDEQ in permitting open burning/open detonation operations at DOE and DoD facilities. Reviewed technical documents, identifying deficiencies, and participated in meetings with regulatory and facility representatives.
- Provided support to EPA Region 4 in permitting an open burn/open detonation facility at a DoD facility by reviewing technical documents, identifying deficiencies, and establishing expectations for improvement. At EPA's request, attended meetings with regulatory and facility representatives to discuss deficiencies and expectations to facilitate the permitting process.
- Developed course materials and presented training information on air dispersion modeling and risk assessment requirements for Subpart X units as part of the Subpart X Permit Writer's Training Course. The course addressed a variety of units that could be permitted as miscellaneous units. These included open burning/open detonation units, carbon regeneration units, and mechanical units such as drum shredders and mercury bulb crushers. The course was presented twice in Region 4 and once in Region 8 and featured case studies centered on demonstration models of five different Subpart X units.
- Reviewed performance test data and equipment design information, and identified sources of fugitive volatile emissions at a site subject to an enforcement action. Provided recommendations to EPA Region 5 for bringing drum crushers and shredders to the site permitted under Subpart X into compliance with Subpart CC regulations.
- Developed the air dispersion modeling protocol for Subpart X units, specifically open burning and underground detonation processes at a military facility. The protocol employed a new air dispersion model developed for such operations, OBODM. In addition, three separate information sources (including a computerized emissions model) were used to identify emitted constituents and quantify the associated emission rates. Upon approval, the emission estimates were developed and the air modeling was performed according to the protocol.
- Performed technical reviews of documents (e.g., Part B Permit applications) for compliance with technical design, environmental performance standards, and other permitting requirements under Subpart X. These reviews of open burning/open detonation and miscellaneous thermal treatment units included the air and noise assessments required by the Subpart X regulations.
- Similarly, performed technical reviews of documents associated with the RCRA permitting of several BIFs, including the design standards, trial burn plans and air dispersion modeling results. Reviews encompassed pre-compliance and certification of compliance submittals.
- Developed training materials and presented information on RCRA Subpart CC regulations to state regulators, EPA staff, and the regulated community in EPA Regions 4, 5 and 10. The presentations in Regions 4 and 5 included a discussion of the relationship between the RCRA regulations and the requirements under the Clean Air Act.

- Provided legislative and regulatory support to the United States Occupational Safety and Health Administration (OSHA) through participation in the Regulatory Impact Analyses for the proposed OSHA permissible exposure limit (PEL) standard, the standard for process safety management (PSM), and a proposed ergonomics standard for general industry. Visited industrial sites, developed telephone survey questions, and developed methodologies to determine the current level of compliance of industry and the average unit cost of compliance associated with the provisions of each standard.
- Conducted research on the use of plasma arc torches for treating municipal solid wastes, phosphatic clays, and other waste streams. Designed and provided oversight of laboratory experiments to characterize input and output streams. Researched permitting requirements and analyzed the conversion and usage of the energy available in the process effluents. In-situ and ex-situ applications were considered.
- Directed the energy systems research task of the Georgia State Agricultural Research Program over a five-year period. Supervised work of professional research staff and graduate/undergraduate students.
- Conducted research on the use of alternate energy sources and energy conservation technologies. Significant research included: modeling the heat transfer phenomena in a solar attic for temperature and air quality control, designing and successfully demonstrating the use of air-to-air heat recovery technology for temperature and air quality control in the workplace, and developing a computer algorithm to efficiently operate the heating and ventilation systems in poultry-grow outhouse.
- Provided technical assistance to Georgia agribusinesses in the areas of energy conservation and industrial ventilation by calculating ventilation rates needed to comply with OSHA standards. Performed preliminary design of makeup air systems, including the use of air-to-air heat exchangers to pre-condition makeup air and lower operating costs.
- Directed the technology transfer task of the Program for one year, co-authoring and co-editing newsletters and publications directed at the users of GTRI research results. As part of this effort, designed and managed a display of GTRI agricultural research for a major agricultural trade show.

PUBLICATIONS/PRESENTATIONS

- Circeo, L.J.; Mayne, P.W.; Sak, K.; Smith, M. In Situ Plasma Stabilization of Impounded Clay Soils, Final Report for Project A-7425, GTRI/EOEML, February 28, 2005.
- Martin, R.; Smith, M., Characterization of the Energy Available for the Treatment of BEAR Base Solid Waste Streams with a Plasma Torch, Final Report for Project A-7343, GTRI/EOEML, April 23, 2004.
- Smith, M.S., Hazardous Waste Combustors: Regulatory Review of Risk Assessment Protocols and Reports. Presented at the Hazardous Waste Combustors Specialty Conference and Exhibition: Adopt a MACT, Air and Waste Management Association, Charleston, SC, 2003.
- Smith, M.; Witt-Smith, C., RCRA Miscellaneous Units Permit and Compliance Training Course, EPA Region 4, February 2002.
- Smith, M.; Witt-Smith, C., Subpart X Permit Writer's Course, EPA Region 8, January 2001
- Dreith, J.; Smith, M.; Walvatne, G., Subpart X Permit Writer's Course, EPA Region 4, December 1999
- Mooney, E.; Smith, M.S., Risk Assessment for Air Pollutants, EPA Region 4, March 1998, September 1998
- Druschel, S.; Smith, M.S., Compliance Assistance Seminar on Subpart CC Regulations, EPA Region 10, May 1997
- Dreith, J.; Druschel, S.; Smith, M.S., Compliance Assistance Seminars on Subpart CC Regulations, EPA Region 5, March and April 1997

- Dreith, J.; Smith, M.S., Compliance Assistance Seminar on Subpart CC Regulations, EPA Region 4, March 1997
- Smith, M.S., Air Dispersion Modeling in Combustion Risk Assessments, RCRA Combustion Risk Assessment Training, EPA Region 4, January 1997
- Smith, M.S., Air Dispersion Modeling in Combustion Risk Assessments, RCRA Combustion Risk Assessment Information Forum, EPA Region 4, June 1996
- Smith, M.S., Regulatory Applications of Air Dispersion Models, Guest Lecture and Computer Demonstration, College of Agricultural and Environmental Sciences, University of Georgia, EHS 408/608, May 1995, April 1996
- Koehnen, J.; Smith, M.S., Application of Air Dispersion Models to Hazardous Waste Combustion Units, A.T. Kearney In-House Risk Assessment Training, June 1996
- Smith, M.S., Technical Design Standards, Basic Permit Writer's Course, EPA Region 4, August 1992, August 1993
- Ross, C.C.; Smith, M.S.; and Walsh, J.L., "Data Acquisition Systems for Monitoring Process Energy Requirements," Winter Meeting of the American Society of Agricultural Engineers, Paper 89-3564: 16 pages, 1989
- Jacobs, D. and Smith, M.S., "Exposure to CO2 in Poultry Processing Plants," American Industrial Hygiene Association Journal, 49(12): pages 624-629, 1988
- Walsh, J.; Ross, C.C.; Smith, M.S.; Harper, S., "Biogas Utilization Handbook," Georgia Tech Research Institute, Georgia Institute of Technology, U.S.DOE, Contract TV-61855: 120 pages, 1988
- Daley, W.D.R.; Ross, C.C.; Carey, R.; Smith, M.S., "Construction, Design, and Installation of a Computerized Control System for Livestock Housing," Third International Livestock Environment Symposium, Toronto, Ontario, Canada, April 25-27, 7 pages, 1988

EMPLOYMENT	TechLaw, Inc.	Part-time Consultant	2010 – Present
	TechLaw, Inc.	Senior Staff Consultant	2006 - 2010
	Georgia Tech Institute of Technology and Research	Senior Research Engineer	2003 – 2006
	TechLaw, Inc.	Part – Time Consultant	2003 – 2006
	TechLaw, Inc.	Senior Staff Consultant	1997 – 2003
	A.T. Kearney	Project Director	1989 – 1997
	Georgia Tech Institute of Technology and Research	Research Engineer	1980 – 1989
TRAINING/ CERTIFICATIONS	➢ Confidential Business Information (CBI) Training, 2013 ➢ 8-hr OSHA Refresher Training, 2002; ➢ RCRA Brownfields Prevention Workshop, 2001; ➢ U.S. Department of Energy Cost Quality Management Assessment Training, 1993; ➢ 40-hr OSHA Health and Safety (H&S) Training, 1992; ➢ Fundamentals of Air Dispersion Modeling/Computer Modeling Laboratory, 1992; ➢ EPA Region 4 BIF Training, 1992; ➢ A.T. Kearney In-House BIF and Subpart X Training, 1992; ➢ 8-hr OSHA Health and Safety Supervisory Training, 1991; ➢ EPA Region 4 RCRA Orientation Training, 1989		

Indira Balkissoon

PROFESSIONAL EXPERIENCE	Total Years' Experience: 27 Years' Experience Supporting EPA contracts: 13 Years with TechLaw: 3
EDUCATION	M.P.A., Public Administration, Harvard University, 1998 M.S., Geology, New Mexico Institute of Mining and Technology, 1982 B.S., Geology, Beloit College, 1979 B.A., Anthropology, Beloit College, 1977

QUALIFICATIONS

27 years of experience in the management of environmental projects and application of geological science

Served as a Remedial Project Manager in EPA's Superfund Program

Trained ADR Facilitator

Ms. Balkissoon has 27 years of experience in the management of environmental projects and the application of geological science. She also has expertise in project management principles, as well as the requisite skills in facilitation, communication and negotiation to lead and oversee large complex projects for the U.S. EPA and other clients.

- Ms. Balkissoon has extensive experience in geology, hydrogeology and statistics, including the design and coordination of hazardous waste investigations involving groundwater monitoring programs; geologic investigations; geological and groundwater sampling techniques; groundwater monitoring design and installation; implementation of quality assurance/quality control programs; light non aqueous phase (LNAPL) and dense non-aqueous phase liquid (DNAPL) fate and transport. In addition, she has prepared and reviewed Alternate Contaminant Limits, Corrective Action Plans, Compliance Monitoring Plans, Field Sampling Plans, Quality Assurance Project Plans, Site Assessments, RI, Remedial Designs for Groundwater Extraction and Treatment systems, Responsiveness Summaries, ROD and Explanation of Significant Differences, held public hearings, facilitated public meetings, and conducted statistical evaluations for RCRA compliance.

- Ms. Balkissoon has over 15 years of experience in managing, supervising, and providing technical input to hazardous waste investigations. As site manager, she has reviewed and/or coordinated a team to review technical documents generated by Department of Defense facilities and their contractors at ten federal facility sites, i.e., MCAS El Toro, MCAS Tustin, Moffett Federal Airfield, Mather AFB, George AFB, Norton AFB, MCLB Barstow, Camp Pendleton, and Hunters Point Shipyard. She also led a team of technical experts and site managers to review and coordinate reviews of a wide variety of CERCLA activities, including CERCLA site assessments, RI/FS, EE/CA, Records of Decision (ROD), numerous work plans for removals, remedial designs, and post-ROD activities. She has extensive experience with CERCLA enforcement and compliance. She has provided technical support for post-ROD activities, such as Five-Year Reviews, long-term monitoring, and Basewide Groundwater monitoring. She has also conducted field facility inspections at a variety of facilities.

- Ms. Balkissoon also has expertise in making formal presentations and developing training programs. Additionally, she has worked with states and local municipalities on a wide range of brownfields and environmental justice issues, including solid waste, tire, and battery recycling,

industrial ecology, vacant lot redevelopment, fish tissue sampling and comparative risk assessment. She also has experience in working with the tribes and acted as the Tribal Coordinator for the Wampanoag Tribe on Martha's Vineyard.

- Ms. Balkissoon serves as TechLaw's liaison to the EPA Region 9 Region Project Officer and coordinates communication between EPA and subcontractors to ensure that all terms of work assignments are met. Her responsibilities include generation of monthly progress and financial reports for EPA, financial oversight on regional work assignments, Conflict of Interest (COI) management and continuous client communications. She is responsible for assuring that all deliverables receive the proper level of quality control for technical soundness. Ms. Balkissoon manages TechLaw's San Francisco office, supervises the Work Assignment Managers, and is responsible for the overall quality of the work products generated for Region 9.

- Ms. Balkissoon is a trained ADR facilitator. She was listed as one of EPA Region I's ADR facilitators. She continues to use her ADR training as a Superfund Remedial Project Manager on private sites where the responsible parties disputed all enforcement requirements and where community residents picketed public meetings. Also, as a program manager for a regional geographic initiative at EPA, she facilitated a number of contentious meetings on environmental justice in Boston, MA and Providence, RI. This work assisted in identifying urban environmental issues and assisted EPA in developing processes to deal with these issues, thereby avoiding more formal disputes.

- As part of the Base Realignment and Closure process, she supported EPA as a contractor providing technical input into the Level One Phase of an ADR process at Mather Air Force Base, Sacramento, CA. This process lasted for approximately 9 months. As part of this team, Ms. Balkissoon supported and assisted in the development of a Level One Joint Issue Statement. Participants in the dispute include the Sacramento Regional Water Quality Board, the California Department of Toxic Substance Control, the Air Force, and the EPA. One of the six issues identified in the Joint Issue Statement related to water quality standards and trigger values. It addressed supply well water concentrations for each chemical of concern that requires the Air Force to implement wellhead treatment or an alternate water supply when a drinking water supply well is impacted by any one of the Mather CoCs. The major Mather CoCs are carbon tetrachloride (CCl4), tetrachloroethylene (PCE), or trichloroethylene (TCE). The positions taken by the participating agencies related to whether the trigger criteria should be ½ a Maximum Contaminant Limit (MCLs) or rather a 10-6 cancer risk human health based criteria as required by the Basin Plan.

- Experience providing technical support to EPA on Superfund Site and federal facilities in California, Hawaii, Guam, and Arizona. In this capacity, Ms. Balkissoon has reviewed numerous documents and provided technical support related to identifying, setting and enforcing water quality and clean-up standards. The NPDES program is delegated to the State of California; however, discussion of meeting these discharge standards is often discussed at site meetings.

- Developed an Alternate Concentration Limit as an alternative to MCLs and as a clean-up standard for a groundwater pump-and-treat system at Winthrop Landfill Superfund Site while an EPA Remedial Project Manager.

- Serves as TechLaw's Zone 5 Regional Oversight Contract (ROC) Senior Project Manager supporting EPA Region 9. On this second consecutive ROC, Ms. Balkissoon is responsible for project planning, budgeting, directing performance of tasks, and reviewing all deliverables for 21

work assignments and annual invoices totaling approximately $1.8 million. The current budget for this contract is approximately $9.2 million.

- Ms. Balkissoon also serves as liaison to the EPA Region 9 Region Project Officer and coordinates communication between EPA and subcontractors to ensure that all terms of work assignments are met. Her responsibilities include generation of monthly progress and financial reports for EPA, financial oversight on regional work assignments, Conflict of Interest (COI) management, and continuous client communications. She is responsible for assuring that all deliverables receive the proper level of QC for technical soundness. She manages TechLaw operations for the San Francisco office, which acts as a hub for three satellite offices located in Sacramento, CA; Prescott, AZ; and Salt Lake City, UT. In this capacity, she supervises TechLaw's Work Assignment Managers and is ultimately responsible for the overall quality of the work products generated for EPA Region 9.

- Since 2004, she has also served as TechLaw's Program Manager on the EPA Superfund Enforcement Support Services contract for the Region 9 Program. On the second year of this contract, she has coordinated all activities associated with information gathering/records collection activities related to PRP searches and ability to pay analyses. Most recently, she coordinated a team to verify PRP information; analyze the PRP search information for evidence of liability; create 104 (e) information requests; and letter support.

- At George Air Force Base, evaluated whether the CERCLA petroleum exclusion applied to JP4 commingled with TCE in groundwater. The evaluation concluded that the JP4 was commingled with TCE and that CERCLA does apply.

- Evaluated GW shutdown of GWETs at George AFB. Reviewed hydrographs during GWETS shut down to evaluate site conceptual model. From this analysis a new CSM was developed for the site.

- Led team to develop an outline and time line describing specific information to be requested from PRPs at the MEW Sites in Mountain View, California to expedite preparation of the Five-Year Review process.

- Evaluated Groundwater Monitoring Optimization Proposal for Mather AFB.

- Developed table of TCE indoor air results for a public meeting in Mountain View, California for a community action group. Also updated an EPA reference table of outdoor air samples collected during an indoor air sampling event in the spring and fall of 2003 and compiled the data that was collected from this event.

- Evaluated Groundwater Monitoring Frequency Decision Trees of Travis, Castle and George AFBs to determine similarities, differences and identify constants in evaluating reducing frequency of monitoring at Mather AFB.

- For the Hunters Point Naval ShipYard, provided community involvement oversight support by reviewing the Community Relations Plan. The plan included emergency communication protocols and outreach activities associated with site remediation. TechLaw input suggested that the Navy should summarize all of the concerns expressed over time and describe how they were addressed, including environmental justice issues and information regarding the remediation of radiological materials.

- For Norton Air Force Base, developed a close-out strategy outline in support of an EPA

position paper for the groundwater extraction and treatment systems at the facility. Additionally, evaluated and made recommendations for the associated statistical analysis required to evaluate achievement of clean up standard and future long term monitoring using RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986; the Statistical Analysis of Groundwater-Monitoring Data at RCRA Facilities, Interim Guidance, April 1989 and the Addendum to Interim Final Guidance, July 1992; and the Methods for Monitoring Pump-and-Treat Performance, June 1994.

- Provided technical support to EPA as part of the Level One Phase of an ADR process for the Mather Air Force Base Dispute. This process lasted for approximately nine months. As part of this team, she supported and assisted in the development of a Level One Joint Issue Statement that identified dispute issues related to water quality standard and trigger values for alternate water supply. Participants in the dispute included the Sacramento Regional Water Quality Board, the California Department of Toxic Substance Control, the Air Force, and EPA.

- For the Louisiana Department of Environmental Quality, created and implemented a statistical training course that focused on reviewing statistical applications. Areas of emphasis included the evaluation of data set, determination of the applicability of various statistical tests, and an evaluation of the conditions that must be met before a test could be applied appropriately and how to interpret results. The key focus for the training was the statistical test used as part of the Louisiana and Federal solid and hazardous waste regulations.

- Participated in the Advanced RCRA Corrective Action Symposium on RCRA Brownfields and Public Participation, EPA Region 4, Atlanta, GA. Assisted in the development and served as a presenter in the two-and-a-half day workshop, highlighting tools for redevelopment and reuse to state regulators; shared information about the regulatory issues surrounding advanced corrective action; and allowed attendees to share case examples and discuss them with their experienced peers. Specific topics discussed included: Site Conceptual Model Design; Remedy Selection Process and Design; Institutional Controls; Clean Up Standards: Financial Assurance and Project Cost Estimation; and Brownfields Redevelopment and Reuse Tools (statutory, financial, liability/risk sharing, technical, and public outreach). The workshop is available on EPA Region 4's RCRA Corrective Action Web site: http://trainex.org/moreinfo/classattach/2564/AdvCASymposium9-13-05.pdf. The public participation portion of this training has been submitted to EPA Region 4 for their review and a work plan has been prepared to carry out this training in 2006. This course is also expected to become available on Trainex.

Prior to joining TechLaw, Ms. Balkissoon was involved in various activities associated with CERCLA and RCRA enforcement and compliance. *Key assignments are summarized as follows:*

- Served as a Remedial Project Manager in EPA's Superfund Program in the Maine and Vermont Superfund Section. In this role with EPA, she oversaw the development of remedial design/feasibility studies and the implementation of construction of RCRA subtitle C landfill caps. She developed alternate concentration limits using risk assessment for groundwater compliance. At EPA, Ms. Balkissoon was a certified RCRA inspector. She led and assisted in deliberations leading to agreements with non-federal potentially responsible parties in the negotiation of an administrative order by consent (AOC). She sent out 104(e) letters assigning Superfund liability to PRPs. She managed groundwater compliance investigations at CERCLA and RCRA regulated facilities and developed administrative records for two Superfund sites. Ms. Balkissoon also

established and maintained the administrative records at several information repositories. At EPA Region I, Ms. Balkissoon was a certified RCRA inspector. She managed numerous groundwater compliance investigations at RCRA regulated facilities and at CERCLA facilities. She analyzed and resolved complex environmental problems involving petroleum and hazardous waste sites, urban watersheds, industrial ecology, redevelopment of economically deprived urban areas, and comparative risk assessment. As an RPM, she oversaw the development of Superfund site activities beginning at the hazard ranking stage through the remedial investigation, development of the baseline risk assessment, treatability study, and on to the feasibility study for a groundwater extraction and treatment system using UV oxidation. She managed the design and construction of a RCRA subtitle C landfill cap. She developed alternate concentration limits using risk assessment and determined groundwater Points of Compliance for a landfill site. In concert with EPA attorneys, she negotiated several action memoranda and records of decision. She has developed administrative records for two Superfund sites (Winthrop Landfill and Bennington Landfill). Ms. Balkissoon also established and maintained the administrative records at several information repositories.

- Trained by EPA as a Total Quality Management (TQM) facilitator and negotiator to resolve alternate disputes, Ms. Balkissoon has used this training on numerous occasions. She has held public hearings, conducted informational interviews, and developed numerous fact sheets, some which were translated into Spanish and Hmong. She has also led training sessions and public meetings with several translators.

- Evaluated analytical data quality and conducted statistical analysis of groundwater monitoring data at numerous RCRA permitted facilities for Part B permits and interim status facilities using various statistical methodologies including parametric and non-parametric ANOVA, tolerance and prediction intervals and control charts. Also conducted detailed hydrogeological, geochemical and statistical analyses for RCRA permitted facilities to determine if the statistical triggers actually indicated a release to the environment that required corrective action.

- Conducted detailed hydrogeological, geochemical and statistical analyses for RCRA permitted facilities to determine if the statistical triggers actually indicated a release to the environment that required corrective action.

- Managed and supervised groundwater aspects of numerous corrective action investigations. She conducted file reviews, prepared health and safety plans, conducted facility inspections, and wrote the final RFA reports.

- Developed groundwater monitoring databases and records management for RCRA compliance and conducted RCRA groundwater statistical analyses. She conducted file reviews, prepared sampling and analysis, health and safety plans and RFA reports.

PUBLICATIONS

- Contributor to "Comprehensive Guide for American Indian and Alaska Native Communities," Mittelstaedt, Gillian; Suagee, Dean; and Halpin Nelson, Libby, 2000.

- Suburban News, "Holiday Recycling" and "Office Recycling," 1993.

- Geological Society of America, "Organic/Inorganic Associations of Elements in Coal," October 1982.
- National Remedial Project Managers Conference, "Alternate Concentration Limits Facts and Fiction," Seattle, WA, 1993.
- Bates College, Auburn, Maine, "Fate and Transport of Contamination from the Winthrop Landfill Superfund Site to Annabessacook Lake, Winthrop, Maine," November 1993.

AWARDS AND HONORS

- National Performance Review Hammer Award for Government Reinvention for the Development of an Urban Environmental Initiative serving the Cities of Boston, Massachusetts, Providence, Rhode Island, and Hartford, Connecticut.
- Silver Medal for Developing an Environmental Program for Youth along with the Americorp Organization.
- Gold Medal for Discovering Dioxin Contamination in Woonasquatucket River in Providence, RI.
- Bronze Medal for serving Providence, Rhode Island in developing environmental programs.
- Community Based Environmental Protection Award for serving New England urban areas.

EMPLOYMENT	TechLaw, Inc.	Vice President	2010 - Present
	DNV	Regional Manager / GHG Auditor	2008 - 2010
	TechLaw, Inc.	Regional Manager / Senior Staff Consultant	2000 - 2008
	US EPA, Region I	Urban Environmental Program Director	1996 - 2000
	US EPA, Region I	Remedial Project Manager / Hydrogeologist	1991 - 1996
	Geraghty and Miller	Project Manager / Staff Scientist	1989 - 1991
	US Peace Corps	Field Geologist	1986 - 1988
	Exxon Company	Senior Petroleum Geologist	1982 - 1986
	State of New Mexico	Environmental Geologist	1981 - 1982
	Tenneco Minerals	Field Geologist	1981
	Bendix Field Engineering	Geophysics Technician	1979

TRAINING/ CERTIFICATIONS	➢ Hazardous Waste Site Supervisor Training, 2002; ➢ 8-hour OSHA Refresher Training, 2000; ➢ 8-hour OSHA Supervisor Training, 2000; ➢ Multi-Media Inspector Training, U. S EPA, 1998; ➢ Alternate Dispute Resolution, 1998; ➢ Total Quality Management Trainer, 1996; ➢ Dense Non-Aqueous Phase Liquids, 1995; ➢ RCRA Inspector Training, 1994; ➢ Federal Project Officer Training, 1991; ➢ 40-hour OSHA Health and Safety Training (1989-Geraghty & Miller) HAZWOPER 40-hour Training, 1986 and Annual Updates; ➢ Basic Clastic Facies, Exxon Production Research Company, 1984, 1985; ➢ Reservoir Geology School, Exxon Production Research Company, 1984; ➢ Geophysical Well Logging, Exxon Production Research Company, 1983

Dr. David Dobb

PROFESSIONAL EXPERIENCE	Total Years' Experience: 36 Years as Contract Manager, ESAT Region 10: 16 Years with TechLaw: 12
EDUCATION	PhD, Chemistry, Montana State University (1985) MS, Metallurgy, Montana College of Mineral Science & Technology (1976) BS, Chemistry, Montana College of Mineral Science & Technology (1975)

QUALIFICATIONS

Manager of ESAT R10 contracts since 1996, with consistent excellent and outstanding NIH

Directed three successive contract phase-outs/phase-ins with no late or interrupted

Led ESAT efforts in EMS ISO self-certification and NELAC certification for Manchester Environmental Laboratory

Dr. Dobb is the current Manager of TechLaw's EPA ESAT Region 10 contract—a position he has held since 1996. His background includes more than 16 years of technical and management experience on the ESAT Region 10 contract (currently valued at more than $26 million). As the Region 10 Program Manager, he oversees and maintains a staff of 12 qualified personnel, including 11 prime contract and one subcontract staff in compliance with the requirements of the ESAT contract. He provides oversight of chemists performing **sample analysis** using EPA methods on water, soil, waste, and tissue matrices. As Program Manager for the last 16 years, he has managed work in all areas of the PWS, demonstrating comprehensive knowledge of all ESAT SOW task areas. In that time, he has worked with more than 1,800 assigned projects or tasks (TDFs) and reviewed and signed off on more than 8,000 ESAT Region 10 **deliverables**. His combined 35 years of management, technical expertise with instrumental analysis, **QA/QC** program development, and oversight, project planning, project management, and data evaluation procedures provide critical support to the ESAT contract.

Dr. Dobb also serves as ESAT Program Director for TechLaw, overseeing contracts in EPA Regions 1, 5, 8, and 10. He has extensive knowledge of the ESAT program, supervising and interacting with team managers, subcontractors, and EPA project and contract officers. NIH and CPARS performance scores for these contracts are consistently rated as 'Outstanding' and 'Excellent' in technical quality, adherence to budget and schedules, and business relations. He also provides program management support to the EPA Office of Resource Conservation and Recovery's (ORCR) **Methods Development** Contract focusing on SW-846 method updates, the Methods Information Communication Exchange (MICE) hotline for RCRA, and new method evaluation. He has made several presentations and published several papers, based mostly on his experiences with SW-846 methods and waste characterization methods, and has led, directed development of, and presented multiple training courses to Regional EPA personnel.

As the Program Manager, Dr. Dobb is responsible for the overall technical quality, timely production, cost control/monitoring, and subcontractor performance on all **deliverables** that the ESAT Region 10 team prepares. He has demonstrated experience in maintaining appropriate staffing and expertise levels to ensure that all PWS requirements are met. He has successfully managed the last two ESAT Region 10 contracts for TechLaw, emphasizing efforts to provide EPA with laboratory **analytical support**, **field analytical support**, and expertise in **method development** tasks and PEP **PM2.5** air monitoring. He also manages **data review** services, **analytical logistical support**, and **QA/QC support** under the contract, and is responsible for

implementation of the team QA Program.

On the current contract, he has managed 32 Task Orders since 2006 (including 7 active TOs), performing QC reviews and sign-off on more than 2,000 **deliverables** from more than 550 TDFs—including analyses for ***organics/inorganics***, ***metals***, ***sample preparations***, **method development** projects, **data reviews**, and air program audits. On TechLaw's previous ESAT Region 10 (2001 – 2006) he oversaw 1,880 **deliverables** from 482 TDFs. For the two ESAT contracts combined, he has overseen analysis of more than 38,600 samples comprising more than 270,000 quantitations that include analysis for over 37 different parameters. He has also conducted oversight of 246 audits for **PM2.5**, 4 PMcoarse, two lead monitoring, 83 ***NPAP*** Through-The-Probe audits, and three trace gas audits with two certified field scientists on the current contract. On the prior contract, that oversight included 455 **PM2.5** audits and 24 ***NPAP*** Through-The-Probe audits, along with operating the EPA West Coast **PM2.5** ***weighing*** laboratory, including quantitative gravimetric analyses exceeding 18,000 filters. As the ESAT Region 10 Program Manager from 1996-2001, he reviewed and signed off on 4,226 **deliverables** from 812 TDFs. His experience includes oversight and sign-off of deliverables for ***all of the analytical parameters in PWS Attachment 13.***

Dr. Dobb has extensive experience providing support for more than 160 sites in ESAT Region 10, as well as specific technical and analytical knowledge of the two most active sites in the region: the Wyckoff and BunkerHill/Coeur D'Alene sites. He has led his team to a strong understanding of these sites and is fully aware of the potential data issues associated with each site, including interferences, dilutions needed, DQOs, required reporting limits, required turnaround times, and when preliminary analyses are needed.

His duties as ESAT Region 10 Team Manager also include:

- Interacting locally with the ESAT Region 10 Contracting Officer Representative (COR) , Alternate Contracting Officer Representative (ACOR), Task Order Contracting Officer Representatives (TOCOR**s**), and Task Monitors (TM**s**), including frequent interaction with EPA HQ personnel including the Contracting Officer (CO), Contract Specialist (CS), ESAT Program Manager (EPM) and ESAT Program personnel from other EPA regions.

- Delivering contract requirements such as technical and financial reports, work plans, budgets, schedules, staffing plans, and other required **deliverables** associated with task orders; audits; financial invoices; monthly and annual site-specific **reporting**; data integrity program oversight and development ; ***maintaining database for monthly tracking and reporting***; and Government Furnished Property (GFP) tracking.

- Ensuring staff properly use and are familiar with the **LIMS** ***Clarus*** for analytical data input and sample log-in.

- Responsible for the overall technical performance and compliance with schedule and budget requirements of all regional ESAT task orders, and for the timely delivery, completeness and technical quality of all ESAT regional **deliverables** and reports.

- Performing decision-making processes concerning laboratory operations, procedures and policies, and ensuring that environmental laboratories and environmental programs comply with RCRA, TSCA, and OSHA waste and safety regulations.

- Providing staff development and training, covering areas such as: **analytical training**, **QA/QC** program training and development and oversight; ***attend EPA specialized training***; ***provide technical presentations at conferences***; ethics training; personnel training/evaluation; Conflict of Interest (COI); and all EPA-mandated health and safety training. He ensures the mandatory 8 hours of laboratory safety training are met by all staff each year. He serves as a permanent member of the MEL health & safety committee.

- Ensuring ESAT staff maintain their DOCs and maintain NELAC certification at the Manchester Environmental Laboratory (MEL).

- Ensuring peer reviews on data packages are performed properly and in a timely manner, and performing peer reviews on ***organics*** and ***inorganics*** data packages when periods of heavy analytical workload and short deadlines pre-occupy analytical staff.

- Ensuring ESAT requirement compliance, and program and project coordination with CERCLA, RCRA, state, and other regulatory requirements.

- Developing and/or revising QA-related guidance documents such as **Quality Assurance Project Plan (QAPP)** Guidance, analytical method comparisons and technical specifications.

- Leading project planning **meetings** with staff and EPA as part of **field analytical support** to help the project team develop data collection and evaluation strategies and **sampling and analysis plans (SAPs)** that use the best sampling and analytical tools and approaches to meet site-specific decision needs.

- ***Preparing QAPPs***, ***reviewing and updating SOPs, attending laboratory QA meetings***, and ensuring staff read and follow the MEL Quality Assurance Manual, the ESAT **QMP**, and the TechLaw corporate **QMP**.

- Interviewing potential staff candidates and cross-training new and existing staff to increase interoperability and redundant systems to maximize productivity. This better covers highs and lows in workload between the service areas.

- He is also very familiar with the National Environmental Laboratory Accreditation Conference (NELAC) Institute Standards, the new TNI standard, and ISO/IEC 17025 general requirements for the competence of testing and calibration laboratories. His team has passed four successful biannual NELAC recertifications at MEL, and is prepared for upcoming recertification in 2013. He is also well-versed in CLP protocols/EPA methods and guidelines.

RELATED EXPERIENCE

Under the current ESAT Region 10 contract, Dr. Dobb manages a team that provides a comprehensive scope of work that includes a particular focus on **laboratory sampling analysis**, **method development** for regional needs, oversight of ***Geoprobe®*** field sampling for ***organic/inorganic*** parameters in samples and analyses in a mobile laboratory, oversight of the PEP Air Program, ***NPAP*** TTP Air Program, FASP work, ***CWA*** support efforts, **Method 8330B development** and **data review/validation**.

Other examples of Dr. Dobb's management experience directly related to the ESAT program include:

Reviewed data integrity and signed off on more than 6,000 **deliverables** that the ESAT Region 10 Team has produced since 1996.

Helps manage the Field Analytical Services Program (FASP) team for ESAT Region 10 that has completed 57 successful field projects, most of which required significant ***Geoprobe® drilling*** and sampling efforts and extensive analytical expertise. This role included help in planning, site safety plan preparation and approval, budget planning, help in logistics, staffing and scheduling, procurement of resources, including licensed driller subcontracting and oversight, central communications, and technical advice. Management of each project continued after demobilization, until final data packages were submitted and signed off, and tasks were closed. Commendations on team performance have been received on multiple occasions from EPA project officers.

FASP garage activities he oversees includes ***field instruments and battery maintenance***, ***vehicle contamination***, ***vehicle pick-ups/deliveries*** between the FASP garage and the ***EPA field warehouse***, ***field equipment load-ins/load outs***, as well as cleanliness and safety of the garage, and readiness and availability of the tools and consumables, including ***Geoprobe®*** rods, liners, expendable tips, etc. This also includes readiness of equipment and consumables for the mobile laboratory for ***field analytical support***.

Provided significant assistance and management oversight in helping the MEL achieve self-declaration of ISO 14001 compliance for a quality environmental management system (EMS). This highly successful effort helped Region 10 meet the executive order for all Regional laboratories to be EMS compliant. In the same manner, also provided significant assistance and management oversight in helping MEL become a NELAC-certified laboratory. Both EMS self-declaration and NELAC certification required gaining familiarity with the requirements, setting up procedures, and educating staff to achieve and maintain compliance. Corrective action and continuous improvement initiatives are also overseen within the management role, which helps enable dynamic and effective participation by ESAT in EMS and NELAC compliance programs at MEL.

Helped establish, manage, and control many complex buy-ins to the ESAT contract. Among the more complex buy-ins was the microbiology Giardia and Cryptosporidium performance evaluation program. Provided management input and hiring expertise in leading an accomplished team of microbiologists to complete all scheduled tasks well within EPA's expected funding. These efforts saved more than $150,000, which was released for use in other EPA projects. When the buy-in was completed, the staff was retained, cross-trained, and reassigned to other highly successful projects. This program lasted three years, surpassing all performance goals.

Led other complex buy-ins that included the **PM2.5** air sampling laboratory operation and field audits, ***NPAP*** Through-the-Probe (TTP) and trace gas audits. Assembled highly competent specialists to staff the buy-ins, taking the lead role in fall protection safety training, which was then passed on to other regions participating in **PM2.5**. Other complex buy-ins included: a lead bioavailability project; Method 8330B explosives compounds in marine tissues project; the ***CWA*** laboratory project; and in prior ESAT contracts, the Rhone Poulenc RCRA project; Alaska Placer project; Locational Database Improvement project; and the Western EMAP project.

Oversaw the development and distribution of high-quality pre-award and quarterly blind PE samples, coordinating the efforts of 10 personnel in the successful preparation, shipment, and referee analysis of more than 20 ***inorganic*** quarterly blind sample sets and seven pre-award sample sets. This activity resulted in more than 1,800 laboratory shipments of approximately 5,500 samples, and played a critical role in monitoring the performance of all ***inorganic*** CLP and

numerous non-CLP (including EPA Regional) laboratories.

Performed more than 15 audits of laboratories in pre-award status or operational status for labs supporting the EPA's Contract Laboratory Program.

ADDITIONAL EXPERIENCE

Dr. Dobb has an extensive background in laboratory management and operations support, analytical chemistry, analytical **methods development** and **QA/QC** Program Support. Other examples of his work include:

Program Manager of TechLaw's SW-846 **Methods Development** contract under EPA's Office of Resource Conservation and Recovery. This includes oversight of the Methods Information Communication Exchange (MICE) hotline, **Methods Development** Support, and Updates of the SW-846 manual. This also includes oversight of budget, timeliness and quality of **deliverables**, communication with the client and project managers, as well as providing technical input. Knowledge of the **method development** process with respect to the SW-846 manual offers significant advantages for proper **method development** efforts within the region. Two currently ongoing Region 10 projects—the in-vitro Lead Bioavailability project and the Method 8330B project for explosive compounds in marine tissues—are direct recipients of his knowledge of proper **method development** procedures.

As Program Manager for TechLaw's contract with the Utah Department of Solid and Hazardous Waste, oversaw 16 work assignments for ongoing and one-time projects, including ongoing **Risk Assessment** reviews for Dugway Proving Ground (DPG); Review of **Biological** Warfare Agent (BWA) Sampling Plans, Corrective Action Plans, and BWA Sample Analyses; Deseret Chemical Depot Air Dispersion Modeling; TOCDF Secondary Waste Disposal Demonstration Reviews; Development of a ***Mercury*** Source Protocol; Training and Field Verification of MEC and UXO Anomalies at DPG; Evaluation of Open Burning, Open Detonation Modeling; **Data Validation** of Ensign Bickford Site Data; and state-wide conduct of a Used Motor Oil Survey. Also oversaw **HHRA** and ***SLERA*** reviews for ATK Promontory site, Bacchus Site, and Visual Sampling Plan for UXO sampling at Camp Williams.

As Contract Manager for the City of Portland, Ore., Urban Area Emergency Resource Management Assessment and Plan contract, oversaw a four-phase contract over two years. This included assessing the current environment and identifying gaps in the UARMC program for the city and surrounding area; creating a strategy for the Resource Management Plan; completing Resource Management Plan development and acceptance; and developing Resource Management Plan training.

Managed a five-year effort over three consecutive contracts to perform air operating permit program audits of Washington State Department of Ecology offices and Local Clean Air agencies, per WAC 173-401-920 Part 3. The audit program was streamlined to better evaluate the air agency's ability to enforce emissions protocols and emissions management practices among their various permit holders.

Performed **data validation** and QC of data validations on 65 data sets during the Hurricane Katrina emergency response. During the response, worked with colleagues to determine that apparent detections on validated ***hexavalent chromium*** data were really caused by matrix interferences. This was determined after comparing the Cr^{+6} data to total chromium values in the same data sets. The problem was brought to the EPA's attention just before the Cr^{+6} data was going to be posted on the National Web site, preventing inaccurate data from being posted.

Developed a **QA/QC training** course for the EPA Laboratory in Las Vegas, NV, teaching the course to EPA and laboratory staff in EPA Regions 7 and 9. Also developed a training course on validation of ***ICP-MS*** data generated by Method 6020 CLP-M for EPA Regions 6 and 10, and led a course on the design, use, and interpretation of data for performance evaluation materials, presented to Region 7 EPA staff and the US Army Corps of Engineers.

Directed and supervised a major portion of an effort to develop and validate ***ICP-MS*** Method 6020 for the analysis of CLP Target Analyte List ***metals***, and led a major component of the design, implementation, and interpretation of a major multi-laboratory study to validate the new ***ICP-MS*** method.

Led ***inorganic*** **method development** efforts for the Lockheed Analytical Laboratory in Las Vegas, where he utilized laser induced fluorescence spectroscopy techniques, and led development of total sample digestion methods and applied them to material balance calculations for several types of newly developed waste remediation technologies.

Supported multiple EPA contracts as ***inorganic*** chemistry project leader for Lockheed in Las Vegas, where he was responsible for supervising as many as eight technical personnel in the Atomic Spectroscopy Section. He participated in **method development**, project design and implementation for RCRA and CERCLA programs, managed budgets, interfaced with EPA work assignment managers and project officers, and dealt with all personnel issues.

EMPLOYMENT	TechLaw, Inc.	Expert Consultant	2001 - Present
	Lockheed Martin	ESAT Region 10 Team Manager	1996 - 2001
	Lockheed Martin	Scientific Supervisor/Senior Scientist	1986 - 1996
	Montana State University	Adjunct Assistant Professor – Chemistry	1985
	Montana State University	Graduate Teaching Assistant	1983 - 1985
	Copper City Assayers	Manager	1981-1983
	Montana Tech	Spectroscopist	1976 - 1981
SPECIAL TRAINING/ CERTIFICATIONS	Management training includes six different management courses through the National Management Association, annual compliance training regarding drugs in the workplace, ethics, harassment in the workplace, labor charging, and health and safety. Also attended a 1-week intensive Management Effectiveness Institute course, annual ethics training, integrity training and Cybersecurity awareness training; **PM2.5** air program field sampler certification; Experimental Design, Simplex Optimization, Pierre Gy Sampling and Sample Homogeneity; Confidential Business Information (CBI) Training; EPA Lab Safety training annual since 1996; biannual First Aid/CPR and Blood-Borne Pathogen training; and various instrument manufacturer's training courses Member, American Chemical Society Member and Past President, Nevada Section, Society of Applied Spectroscopy		

PUBLICATIONS/PRESENTATIONS

Gerlach, R.W., D.E. Dobb, G.A. Raab, and J.M. Nocerino, July 2002, Gy Sampling Theory in Environmental Studies 1: Assessing Soil Splitting Protocols. J. Chemometrics 2002; 16: pp 321-328.

Miah, M.J., D. E. Dobb, G. A. Raab, F. C. Garner, and R. W. Gerlach, 2000. Performance Study Results Comparing Five Laboratory Subsampling Methods. Chemometrics Support, National Exposure Research Laboratory Report, GSA Contract GS-35F-4863G, Task Order PLI688491, Las Vegas, NV.

Dobb, D.E., J. Heitschmidt, L. J Ottmar, and T. M. Hall. 1996. A Comparison of Radial, and Axial-Viewed ***ICP-AES*** Instruments for the Determination of As, Pb, Se, and Tl in Environmental Samples. 1996 Pittsburgh **Conference**, Chicago, IL.

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

RESUMES

RICK A. HOPKINS, Ph.D., Principal
Senior Conservation Biologist/Ecologist

EDUCATION

Ph.D. Wildlands Resource Science, University of California, Berkeley, CA. 1990.
Dissertation Title: Ecology of the cougar in the Diablo Range.
M.A. Biology, San Jose State University, San Jose, CA. 1981.
B.A. Wildlife Zoology, San Jose State University, San Jose, CA. 1976.

AREA OF EXPERTISE

Population ecology, mammalogy, predator ecology, survey techniques, wildlife/habitat relationships, conservation biology, threatened and endangered species, and environmental regulations (CEQA, NEPA, FESA, CESA)

PROFESSIONAL EXPERIENCE

Live Oak Associates, Inc., (formerly Hartesveldt Ecological) Oakhurst, CA. Co-Owner, Vice-President, Senior Wildlife Biologist. 1999 to Present
Consulting Biologist 1990 to present
San Jose State University, San Jose, CA. Spring Lecturer. 1991
University of California at Berkeley, Berkeley, CA. Research Assistant. 1984 to 1989
San Jose State University, San Jose, CA. Lecturer. 1983 to 1985
University of California at Berkeley, Berkeley, CA. Teaching Assistant. 1982 to 1983
San Jose State University, San Jose, CA. Graduate/Teaching Assistant, Biology. 1977 to 1981

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Wildlife Society, American Society of Mammalogists, Society for Conservation Biology, Ecological Society of America

QUALIFICATIONS

Dr. Hopkins is a national recognized wildlife ecologist whose training and research has focused on population ecology and movements of wildlife, particularly mammalian carnivores and threatened and endangered (T&E) wildlife species. His areas of expertise include the following:

Special status Species Surveys. Dr. Hopkins has designed and managed a considerable number of surveys for special status species and/or their habitats during the last 24 years. While Dr. Hopkins is a broadly trained ecologist with experience with several wildlife species, he has dedicated the last 35 years to the study of mammalian carnivores. During the last 20 years he has focused a great deal of attention in studying the distribution of the San Joaquin kit fox within its range. He has continued to search for ways to establish survey techniques that will provide statistical rigor to the methods employed to ascertain the presence or absence of wildlife species on sites, particularly in marginal habitats. He has also assisted his clients with mitigation that reduced impacts to such species, including (but not limited too) listed crustaceans (e.g., vernal pool fairy shrimp), Bay checkerspot butterfly, Mission blue butterfly, San Bruno elfin, Callippe

butterfly, Valley elderberry longhorn beetle, California tiger salamander, California red-legged frog, western pond turtle, blunt-nosed leopard lizard, Alameda whipsnake, western burrowing owl, Swainson's hawk, golden eagle, bald eagle, Buena Vista Lake shrew, giant kangaroo rat, salt marsh harvest mouse, San Joaquin kit fox.

Resource Conflict Resolution: Rick has provided consultation regarding human/wildlife conflicts (particularly with large carnivores such as the cougar) to nongovernmental organizations, City and Counties, state legislatures, and Fish and Game Commissions, in several western states during the last 30 years.

Landscape Scale Conservation Planning. Rick has participated in state-wide efforts to identify the important landscape linkages remaining in the state (i.e., Missing Linkages Conference) and in regional efforts such as the San Francisco Bay Area Upland Goals Workshop and TNC Central Coast Ecoregional Workshop. These efforts have focused Rick's interest in using theoretically grounded spatial tools to inform conservation planning at relevant spatial scales. An integral part of this process is working with applicants and landowners to identify suitable landscapes to conserve and manage to fulfill any required state or federal obligations that the regulated community may have incurred as part of their projects. Presently he is using these approaches in the development of a multi-species HCP for the 47,000 acre Elk Hills Oil Field, a cougar habitat management plan for 35,000 km^2 area of Southern California, and developing conservation strategies for large-scale solar projects in central and southern California.

Endangered Species Consultations. Dr. Hopkins has prepared supporting material for both section 7(a) and 10(a) consultations with the U.S. Fish and Wildlife Service. As Principal, he has supervised the collection of data on listed species within project areas, analysis of project impacts, the development of mitigation measures, and has been the primary contact with the resource agencies during the process. Dr. Hopkins has prepared a number of Habitat Conservation Plans for a variety of projects.

Preparation of Environmental Documents. Dr. Hopkins has supervised interdisciplinary teams of biologists characterizing the biological setting of project sites and planning areas, determining project impacts, and developing conceptual mitigation plans consistent with the requirements of the CPUC, CEQA and NEPA for over 2000 projects during the last 24 years.

BOARD MEMBER OF NON-PROFIT ORGANIZATION

Cougar Fund, Jackson, Wyoming. President of the Board for an organization dedicated to the preservation of the cougar in its present and historic range. Other board members include Jane Goodall, Marc Beckoff, Tom Mangelsen (Co-founder), Cara Blessley (Co-founder), John Swallow, Corinne E. Rutledge, Webb Blessley and Robert Koon.

Conservation Science Partners (CSP). LOA assisted in its formation. CSP is a nonprofit scientific collective established to meet the analytical and research needs of diverse stakeholders in conservation projects.

SCIENTIFIC ADVISORY BOARDS

Department of Biological Sciences, San Jose State University.

Predator Defense; an Oregon organization dedicated to the use of sound science in the management of mammalian predators.

DAVID J. HARTESVELDT — Principal
Senior Botanist and Wetland Scientist

EDUCATION

Graduate Studies. Botany, San Jose State University, San Jose, CA. 1972 to 1976
B.A. History, San Jose State University, San Jose, CA. 1969

AREA OF EXPERTISE

General botany, flora, wetlands and wildlife issues of California, threatened and endangered species, environmental regulations (CEQA, NEPA, CESA Clean Water Act, Fish and Game Code)

PROFESSIONAL EXPERIENCE

Live Oak Associates, Inc. (formerly Hartesveldt Ecological), Oakhurst, CA. Co-Owner, President, Senior Botanist and Wetland Scientist. 1995 to Present.
Consulting Biologist 1985 to present.
Crater Lake National Park, OR. Park Ranger. Summer Season, 1979 and 1980.
Illinois Valley High School, Cave Junction, OR. High School Teacher. 1978 to 1986.

PROFESSIONAL TRAINING

Wetland Delineation Refresher, Wetland Training Institute. 1/95
Jurisdictional Delineation of Wetlands in the San Francisco Bay Region, American Fisheries Society. 5/88

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

Society of Wetland Scientists, Association of Environmental Professionals (AEP)

QUALIFICATIONS

Mr. Hartesveldt is an experienced botanist and wetlands ecologist who has been studying the flora of California for much of his adult life. Although his particular interest is the flora of California, he has studied regional floras in Oregon and Minnesota, states in which he worked as a seasonal ranger for the National Park Service. He has provided consulting services to a variety of clients including local agencies, planning firms, attorneys, and developers. His areas of expertise include the following:

Delineation of Jurisdictional Waters. Mr. Hartesveldt has completed specialized training in wetland delineation methodologies and during the past ten years he has completed numerous detailed wetland delineations. He has conducted studies in tidal marshes, diked salt marshes, freshwater marshes, ruderal seasonal wetlands, alkali wetlands, vernal pools, and montane meadows. For example, in 2013 Mr. Hartesveldt, provided consulting services to a large farm coalition that was concerned about the High Speed Train alignment that adversely affect farming operations for several thousand acres in Kern County, California. Mr. Hartesveldt oversaw the collection of data for a formal wetland analysis suitable for the USACE, provided expert testimony at numerous public hearings, and as a result of that work, is now assisting the High Speed Train Authority in finalizing the route preferred by the farming community

Wetland Permit Assistance. Mr. Hartesveldt has assisted clients in securing U.S. Army Corps of Engineers, California Regional Water Quality Control Board, and California Department of Fish and Game permits for filling wetlands and other jurisdictional waters. These permits frequently are conditional upon the preparation and implementation of mitigation plans that enhance existing wetland values or provide replacement habitat.

Special Status Species Surveys. Mr. Hartesveldt has conducted numerous surveys for threatened or endangered plants and animals, and/or their habitats, and assisted his clients with mitigation that reduced impacts to such species. Mr. Hartesveldt has supervised the collection of data and preparation of suitable reports for a whole host of linear projects ranging from transmission lines, roads, water delivery systems, and rail-lines.

Preparation of Environmenta Documents. Mr. Hartesveldt has prepared portions of numerous EIR's, initial studies, NEPA documents, and documents required by other regulatory agencies such as the CPUC, Bureau of Reclamation, National Park Services, etc. As such, he has either conducted himself or supervised the collection of data from reconnaissance level wetland delineations, special status species surveys, habitat mapping, etc. As a project manager for over

2000 projects over the last 28 years, he has supervised interdisciplinary teams of biologists characterizing the biological setting of project sites and planning areas, determining project impacts, and developing conceptual mitigation plans consistent with the requirements of the various regulatory agencies.

APPENDIX B

CURRICULA VITAE OF Computer Terrain Mapping

COMPUTER TERRAIN MAPPING, INC.
1401 Walnut • Suite C • Boulder, CO 80302 / POB 4982 • Boulder, CO 80306
TEL (303)444-1670 FAX (303)443-4856

Biographies

EDUCATION:

Graduate studies in Geophysics
BS, Geology and Mathematics.
Graduated magna cum laude

PROFESSIONAL SOCIETY MEBERSHIP:

American Planning Association (APA)

Edward Russell

Edward Russell is a computer scientist specializing in geographic applications. He has over 28 years of experience in computer mapping, GIS and developing web applications. An expert in applying computer technology to land use planning issues, Ed has developed and presented new and innovative techniques for visual and spatial analysis in areas such as conservation planning, web-based asset inventory and siting of new construction to minimize visual impacts.

He has served on numerous boards addressing issues including land use regulation, comprehensive planning, intergovernmental agreements, and parks and open space planning. He is the author of the EdWare suite of GIS tools for landscape visualization, suitability analysis and terrain modeling.

Heidi Ochis

Heidi Ochis is an environmental scientist with over 24 years of experience in GIS and remote sensing technologies. A graduate of the Forestry Program at Colorado State University, Ms. Ochis is an expert at applying GIS technology to environmental and land use planning problems. A principal at CTM since 1996, she specializes in assessing the visual impacts of growth, land use and land cover change, visual simulation, 3D modeling and image analysis.

Heidi's outstanding cartographic skills are utilized by nationally recognized publications such as National Geographic, National Geographic Adventure, Outside and Men's Journal. A strong believer in sharing her expertise with her community, Heidi served on the Louisville Open Space Advisory Board, helping to evaluate and manage open space properties.

EDUCATION:

MS, GIS Remote Sensing, Forestry
BS, Geology

PROFESSIONAL SOCIETY MEBERSHIP:

American Society of Photogrammetry & Remote Sensing (ASPRS)

APPENDIX C

CURRICULUM VITAE OF Larson Fischer

Professional Credentials

Larson Fisher Associates

Neil Larson
845-679-5054
nlarson@hvc.rr.com

Jill Fisher Professional Credentials

professional affiliations • books, articles & catalogs • papers & presentations • electronic creations

RESUME

Education

MA	University of Delaware, Newark DE 1980 Winterthur Fellowship in Early American Culture Studies
AB	Vassar College, Poughkeepsie, NY 1976 General and Departmental Honors

Work History

1998-	Principal, Larson Fisher Associates (formerly Neil Larson & Associates) consulting business specializing in historic preservation, planning, architecture and museum services
1988-	Researcher, writer and lecturer specializing in historic architecture, cultural landscapes and material culture
2001-	Adjunct Professor of History and Associate of Hudson River Valley Institute, Marist College, Poughkeepsie, NY
1994-1998	Executive Director, Hudson Valley Study Center, State University of New York, New Paltz, NY
1994-1998	Adjunct Professor of Art History, SUNY, New Paltz, NY

- Clients Comments
- Contact Information

1988-1990	Curator/Acting Director, Dutchess County Historical Society, Poughkeepsie, NY
1980-1988	National Register and Survey Field Worker, New York State Office of Parks, Recreation and Historic Preservation, Albany, NY

Professional Affiliations

top

Vernacular Architecture Forum*,* Washington, DC
Member since 1984, Annual Meeting Chair, 1986; Board of Directors, 1989-1992; VAF Award Committee Chair, 1991-1993; First Vice President, 1997-1999; Nominating Committee Chair, 1997-1999; Web Site Committee Chair, 1997-1998; Web Master, 1998-2001.

Woodstock Byrdcliffe Guild, Woodstock, NY
Member since 1997, Board of Trustees, 1997-2009; Byrdcliffe Property Committee Chair; Collections Committee Chair; Vice President & Secretary, 2005-2009.

Maverick Concerts, Inc. Woodstock, NY
Member since 2010, Trustee, 2010-, Building Committee, *pro bono* restoration consultant.

19th Century*.* The Magazine of the Victorian Society in America
Editorial Advisory Board, 2001-.

1 East 60th Street Historic Foundation (for the preservation of the Metropolitan Club), NYC.
Trustee, 1999-.

Dutch Barn Preservation Society, Rensselaer, NY
Founding Trustee, 1986, Trustee 1998-2007; Publications Committee, 1990-92; Restoration Grant Review Committee, 1996-2003.

Hudson Valley Vernacular Architecture*,* Kingston, NY
Trustee, 2010-, Education Committee, editor of quarterly newsletter.

Construction History Society of America*,* Atlanta, GA
Member since 2005.

SELECT LIST OF PUBLICATIONS, PAPERS AND PRESENTATIONS, EXHIBITS, AND PROGRAMS

top

Books, Articles and Catalogs

2006	"Building a Stone House in Ulster County, New York in 1751," Proceedings of the Second International Congress on Construction History. Cambridge: Construction History Society, 2006, Vol. 2, 1867-1881.

2005 "What Makes Modern Historic? - Mid-20th Houses as Historic Resources," paper presented at Preservation 360, preservation conference organized by the Preservation Foundation of Saratoga Springs, Skidmore College, Saratoga Springs, NY, March 19, 2005.

2002 BOOK REVIEW: *The President as Architect: Franklin D. Roosevelt's Top Cottage* (Albany NY: Mt. Ida Press, 2002) by John G. Waite Associates, Architects in Journal of the Society of Architectural Historians, vol. 61, no. 2 (June 2002) 260-261.

2000 The Jonathan Hasbrouck House. New Paltz, NY: Hasbrouck Family Association, 2000.

2000 BOOK REVIEW: *Morningside Heights: A History of its Architecture and Development* (NY: Columbia UP, 1998) by Andrew Dolkart in Journal of the Society of Architectural Historians, Vol. 59, No. 2 (June 2000) 260-261.

2000 "Lewis Graham's House in Pine Plains [NY]: A Revolutionary Log Building." The Hudson Valley Regional Review. Vol. 12, No. 1 (March 2000) 56-79.

1999 Planning Digital Projects for Historical Collections. NY: The New York Public Library, 1999; with support from an Electronic Doorway Library Services (EDL) Demonstration Project Grant in Fiscal Year 1998.

1997 "The Landscape as Historic Evidence: A Review of the Smithfield Valley's Past." Dutchess County Historical Society Yearbook. Poughkeepsie, NY: Dutchess County Historical Society, 1997.

1997 "Dutch Barns in the Town of New Paltz, 1798." DBPS Newsletter, Spring 1997. Rensselaer, NY: Dutch Barn Preservation Society.

1988 "Agrarian Changes: Learning from Barn Additions," in Dutch Barn Preservation Society Newsletter, vol. 1 no. 2 (Fall 1988), pp. 1-2.

1987 "The Dutch Barn, A Functional Perspective," in William D .Walters, ed., Pioneer America Society Transactions, vol. X (1987), pp. 37-41.

1986 "Dutch Stone Houses of New York State," The Old House Journal, vol. XIV, no. 5 (June 1986).

1986 Ethnic and Economic Diversity Reflected in Columbia County (NY) Vernacular Architecture. Washington D.C.: Vernacular Architecture Forum, 1986.

1986 The Masonry Architecture of Ulster County, New York; An Evolution, 1665 - 1935. Washington D.C.: Vernacular Architecture Forum, 1986.

1981 Med Bai Michele Zaccheo, Torrington Connecticut, USA, catalog for an

exhibit of furniture and decorative arts at the College Art Gallery , State University at New York College at New Paltz, October 11 - 30, 1981.

1981 "Portfolio: Michele Zaccheo, "Fine Woodworking, vol. 31, (November/December 1981), pp. 98-99.

top

Papers and Presentations

2012 "Telling Immigration Stories through Historic Preservation," ***Taking Center Stage: Conflict and Collaboration in the Peopling of Massachusetts,*** 2012 Massachusetts History Conference, June 11,2012.

2012 "The Evolution of Historic Preservation Practice in the Hudson Valley," presented at Hudson River Heritage Annual Preservation Forum, April 28, 2012.

2010 "The Architecture of Abolition," *David Ruggles at 200 Symposium*, David Ruggles Center, Florence MA, April 17, 2010.

2010 "John Vanderlyn's Portraits," *Evaluating Art/Re-Evaluating Vanderlyn*, Symposium at Senate House State Historic Site, Kingston NY, October 23, 2010.

2006 "Identifying Characteristics of African American Housing After Emancipation, The Story of the Hunterfly Road Houses in Weeksville, Brooklyn," presented at at "Researching New York: Perspectives on Empire State Architecture," November 16, 2006.

2006 "Post World War II Architecture," presentation in Hudson Valley Architecture Lecture Series, Life Learning Institute, Bard College, Annandale-on-Hudson, NY, October, 6, 2006.

2006 "Keeping Historic Homes Historic, Preserving Historic Fabric in the Repair and Renovation of Old Houses," seminar for the Hudson Valley Chapter, American Society of Home Inspectors, September 20, 2006.

2006 "Building a Stone House in Ulster County, New York in 1751," paper presented at Second International Congress on Construction History, Queens' College, Cambridge, England, March 29, 2006. This paper was also presented at "From *De Halve Maen* to KLM: 400 Years of Dutch-American Exchange" organized by New Netherland Institute, Albany NY, June 10, 2006 and for the Ulster County Historical Society, June 9, 2007.

2005 "What Makes Modern Historic? - Mid-20th Houses as Historic Resources," paper presented at Preservation 360, preservation conference organized by the Preservation Foundation of Saratoga Springs, Skidmore College, Saratoga Springs, NY, March 19, 2005.

2003 "Wealth & Class in Ulster County Stone House Architecture," paper presented at Conference on New York State History, Bard College, Annandale-on-Hudson, NY, June 6, 2003.

2002 "Stone Architecture in Ulster County," presentation made at a forum on

vernacular architecture, New York Folklore Society, New Paltz, NY, November 9, 2002.

2001 "Architectural Diversity in the Hudson Valley in 1750," presentation made for interpreter training program at Philipsburg Manor Historic Site, Historic Hudson valley, Inc., Tarrytown, NY, February 20 & 24, 2001.

2000 "The Good, the Bad and the Ugly: New Information and Ideas About Worcester's Architecture," presentation made to the members of Preservation Worcester, Worcester, MA, June 22, 2000

2000 "Understanding the Architecture of Your Vernacular House," presentation made for a historic preservation series offered by the Catskill Center for Conservation & Development, Arkville, NY, April 29, 2000.

1999 "Early Brick Houses in the Town of New Paltz," presentation made for the Ulster County Historical Society, Annual Lecture Program, Marbletown, NY, August, 1999

1997 "The Georgian Ideal as Applied to Vernacular Architecture," presentation made at a symposium entitled "A Celebration of New York Georgian Style," commemorating the 200th anniversary of Lindenwald, the retirement home of President Martin Van Buren, Kinderhook, NY, November 8, 1997.

1996 "Ordinary Houses in the Hudson Valley," presentation made for Hudson River Heritage, Inc., Annual Lecture Program, Tivoli, NY, December 5, 1996.

1996 "Little Known Gems and Tidbits of Orange County Architecture, presentation made at Knox's Headquarters State Historic Site, New Windsor, NY, November 3, 1996.

1996 "A GIS Model for Recording and Applying Cultural Resource Data at the Town Level," presentation made to the 12th New York State Geographic Information Systems Conference, October 7-8, 1996.

1996 "Dutchess County Architecture, A Microcosm of Hudson Valley Heritage," presentation made to the Turpin Bannister Chapter, Society of Architectural Historians, Troy, NY, April 26, 1996.

1990 "The Rural Plain...In Context," Paper delivered at a symposium of the same name examining the ideas and expression of the plain style in art, architecture and decorative art, 1800-1855. Organized by the Dutchess County Historical Society at Bard College, Annandale-on-Hudson, NY, April 25, 1990.

1989 "Read My Lips! Style Has Meaning in Vernacular Architecture," paper delivered at the annual meeting of the Vernacular Architecture Forum, St. Louis, MO, May 13, 1989.

1989 "German Vernacular Architecture in Old Rhinebeck," presentation made to the Rhinebeck and Clinton (NY) Historical Societies, Clinton Town Hall, Schultzville, NY, February 3, 1989.

1988 "Stone House Architecture in the Stockade," presentation made for the Kingston Urban Cultural Park Commission, Senate House Museum, Kingston, NY December 7, 1988

1986 "New York Dutch Barns: A Functional Perspective," paper delivered at the annual meeting of the Pioneer America Society, Rochester, NY, April, 1986. (This paper has been presented subsequently at various locations with the sponsorship of the Dutch Barn Preservation Society.)

1985 "Evolution of the Dutch Architecture in the Hudson Valley during the 18th and 19th Centuries," paper delivered to the Turpin Bannister Chapter, Society of Architectural Historians, Albany, NY, May, 1985.

1985 "Dutch Antecedents of Sunnyside, Real and Romantic," paper delivered at the conference: Washington Irving And The Dutch Tradition, Sleepy Hollow Restorations, Tarrytown, NY, May, 1985.

1980 "The Politics of Style: Rural Portraiture in the Hudson Valley during the Second Quarter of the Nineteenth Century," Masters Thesis, University of Delaware.

1979 "John Vanderlyn's Portraits," paper delivered at Winterthur Museum, Wilmington DE (March 1979) and Senate house Museum, Kingston, NY (September 1980).

1977 "Evolution of an American Shrine: a Historigraphical Analysis of the Interpretation of Washington Headquarters State Historic Site, Newburgh, New York," prepared as part of course work at the University of Delaware and submitted to NYS Bureau of Historic Sites, Fall, 1977.

1976 "A Proposal for the Reinterpretation of the Vanderbilt Mansion National Historic Site, Hyde Park, New York," prepared as a work/study project at Vassar College, Spring, 1976.

top

Electronic Creations

2001 "Travels Along the Hudson: A Collaborative Digital Library Project on New York State History," New York Public Library and nine other regional libraries and museums (project director).

1998 Vernacular Architecure Forum Web Site, <www.vernaculararchitecture.org>

1996 Hudson Valley Study Center Web Site, <www.newpaltz.edu/hvsc> (site

designer and programmer)

• Hudson Valley Research Directory: an information system of sources on Hudson Valley heritage.

• Hudson Valley Bibliography: a comprehensive, searchable listing of books about the region.

1994 Cultural Resource Data Base Inventory & Geographic Information System Model

APPENDIX D

CURRICULUM VITAE OF Daniel P. Duthie

DANIEL P. DUTHIE, ESQ.
P.O. Box 8
Bellvale, NY 10912
845-988-0453
Cell: 845-987-6453
Fax: 845-988-0455
duthie@attglobal.net

PROFESSIONAL EXPERIENCE

DANIEL P. DUTHIE, ESQ. (1990 to Present)

Currently working with a Municipal Consortium opposing the United Water New York 28.9% rate increase. The Municipal Consortium consists of all five towns in Rockland County, Rockland County itself, the Rockland County Solid Waste Management Authority, the Nyack Public Schools, and four villages with more village and school districts considering joining.

Currently working with the Towns of Clarkstown and Ramapo to analyze benefits of acquiring existing Orange and Rockland Utilities, Inc.'s street lighting system under new SC-6 tariff (eff. July 1, 2012). Negotiations with O&R are underway to obtain a purchase price and other terms in the public interest pursuant to Section 70 of the New York Public Service Law.

Recently complete assignment from the Citizens for Local Power and the Municipal Consortium in Opposition to the Fortis acquisition of Central Hudson. Intervened after Joint Proposal had been filed. ALJs wrote a Recommended Decision against the acquisition. The Public Service Commission reversed the Recommended Decision and the acquisition was approved.

Recently completed representing East River Housing Corporation on a Petition for a Declaratory Order seeking a Public Service Commission determination that the Power Plant ERHC operates is not jurisdictional steam plant. Responsible for multi-year natural gas procurement via request for qualifications and request for proposals for Boiler Modernization Project, converting from No. 6 oil. Multi-million dollar project will pay back in less than two years due to gas/oil price differential and enhanced efficiency of new boiler and burner replacements in existing units. PSC Order issued granting ERHC a Certificate of Public Convenience and Necessity, along with a light-handed and incidental regulatory regime, retroactive to mid-1990, as a jurisdictional steam plant serving 2700 apartments in lower Manhattan.

Currently representing Wehran Energy Corporation in negotiations to obtain a long-term purchase power agreement with the Long Island Power Authority for output from the Brookhaven Landfill methane to electricity project.

Currently representing The Arker Companies and Progressive Management NY, Inc., in a petition to the PSC to modify a previously issued submetering order for Sea Park East,

West and North (over 800 lower income apartments) that forbids the termination of electric service for non-payment.

Currently working with the St. Regis Mohawk Tribe to set up a regulatory commission that will oversee all telecommunication activities on the Akwesasne Reservation. Also assisting in the set-up of the wholesale broadband tribal business to be operated by Mohawk Networks.

Represented the Municipal Consortium in Support of Reasonable Electric Rates in the recently completed Orange and Rockland Utilities, Inc., electric rate case before the Public Service Commission. The Municipal Consortium consists of the Towns of Clarkstown, Ramapo, Chester, Goshen, Highland Falls, Monroe, Tuxedo, Warwick, and Waywanda and the Villages of Chester, Florida, Monroe, Warwick and Haverstraw.

Represented the City of Buffalo, the City of Syracuse, Town of Amherst, the Town of Tonawanda and the Village of Kenmore in opposition to 2010 Niagara Mohawk Power Corporation d/b/a National Grid rate increase pending before the New York Public Service Commission. Due to active intervention and development of expert testimony these five municipalities avoided $1.5 million in increased street lighting costs.

Represented The Willows Home Owners Association, Inc. before the New York Public Service Commission in opposition to water rate increases by Aqua New York.

Represented Broome County before the PSC in opposition to NYSEG electric and gas rate increases decided in September 2010.

Represented the St. Regis Mohawk Tribe on various energy matters and successfully concluded franchise negotiations with Niagara Mohawk Power Corporation. Also represented SRMT in the National Grid – KeySpan merger proceeding before the NY PSC and in Federal Energy Regulatory Commission merger proceeding concluded in August 2007. Completed a Department of Interior funded project to determine the feasibility of exiting NMPC electric service. Working on exiting NMPC electric service and creating Mohawk Electric Cooperative – first electric cooperative in New York in 70 years.

Represented Wehran Energy Corporation in negotiations for a new Interconnection Agreement with the Long Island Power Authority and in opposition to a proposed change in the buy-back rates.

Represented Heritage Hills Society Ltd., a 2600 plus customer condo association in opposition to a proposed water rate increase pending before the NY PSC. Delayed increase by six months and cut it in half.

Represented the City of Utica and the Village of Sherburne in the New York Regional Interconnection Article VII proceeding (transmission line siting proceeding) before the NY PSC. Instrumental in creating delay by filing motion for additional information. NYRI withdrew its petition before the PSC and ended the ill-advised project.

Represented several investment funds in the acquisition of Energy East by Iberdrola before the NY PSC which concluded in September of 2008.

Providing legal advice and assistance to AalonBay Communities, Inc., Cappelli Enterprises and The Trump Organization on various electric, gas and water utility issues associated with large scale residential and commercial real estate developments, including the redevelopment of the Concord.

Various matters for Strategic Power Management, Inc. before FERC and the NY PSC, including an anti- competitive complaint against Orange and Rockland Utilities, Inc.

Qualified and testified as an expert witness on law and regulation before the New York State Public Service Commission (NY PSC) in obtaining on behalf of Northrop Grumman a Certificate of Public Convenience and Necessity to enable Northrop Grumman to operate, in competition with LILCO, a steam and electric system at Northrop's Bethpage site. This was the first new electric company in New York State in many decades.

Qualified as an expert witness developing and testifying on a $5.3 million refund claim for street lighting service on behalf of the City of Albany against Niagara Mohawk Power Corporation. Retained by Albany's counsel Nixon Peabody. Hearings concluded in early 2005. Case settled on terms favorable to Albany.

LEBOEUF, LAMB, LEIBY & MACRAE[1] (Partner 1983 – 1990; Associate Partner 1976 – 1982)

Extensive experience in the development and prosecution of rate applications of water, sewer, gas, electric and telecommunications utilities before federal and state public service commissions. This experience includes "first chair" responsibility for all aspects of administrative hearings, motion practice, brief writing, appellate advocacy and settlement procedures in multi-party proceedings.

> Extensive experience with rate design, cost allocation and economic theory of pricing utility services.
>
> Extensive experience representing major electric and gas utilities in various generic regulatory proceedings, including long range forecasting, nuclear performance standards, fuel clauses, management audits, performance based regulation and, most recently, electric industry restructuring initiatives.

Experience representing cogenerators and independent power producers in negotiations with utilities, contract disputes and litigation.

> Extensive experience with state and federal jurisdictional issues in the natural gas and electric power industry.

---

[1] LeBoeuf Lamb merged with Dewey Ballantine in 2007 and became known as Dewey LeBoeuf. In 2012 Dewey LeBoeuf filed for bankruptcy – the largest law firm to do so in US history. Both firms were founded in the 1920s.

Assistant Secretary and Counsel to an electric utility sponsored research, development and demonstration corporation (not for profit).

Special Counsel to clients on various privatization issues.

Special counsel to 22 municipal water districts on Long Island to lower electric power costs.

Co- or lead counsel in three condemnation proceedings representing the condemnees (three private water utilities companies).

Federal and state litigation experience.

Experience in complex arbitrations.

Pro-bono award --1994 from NYS Bar Association for work with Nassau/Suffolk Law Service Committee, Inc.

STRATEGIC POWER MANAGEMENT, Inc. - Vice President, Secretary and General Counsel (1995 – 2004)

Founded Strategic Power Management, Inc. and participated in the development of the first retail access pilot program in New York State. Secured New York State Public Service Commission approval to provide retail electric and gas service in New York. Obtained a Federal Energy Regulatory Commission wholesale power marketing license. Reviewed all wholesale and retail electric contracts as well as represented SPM on the Management Committee of the New York Independent System Operator from its inception in November of 1999 to December 2004. Handled all legal and regulatory matters before the NYS PSC and FERC. SPM developed a unique business relationship that substantially reduced credit requirements.

ENGINEERING

Licensed Professional Engineer -- New York State

Project Manager -- EBASCO Services - 1973 - 1976

Project Engineer -- Havens and Emerson - 1970 – 1973

EDUCATION

MBA (Finance) Baruch College (CUNY) -- 2002

JD Fordham University School of Law-- 1976 (Admitted to Practice in NYS – 1977; NJ - 1983)

MSCE (Env. Eng.) Manhattan College --1972

BCE (Civil Eng.) Manhattan College-- 1970

MEMBERSHIPS (current or former): American Bar Association, Public Utility Committee; Administrative Law Committee New York State Bar Association, Public Utility Committee, Municipal Law Section; Energy Bar Association; Association of the Bar of City of New York, Energy Committee; New Jersey State Bar Association, Public Utility Section; Edison Electric Institute, Legal Committee; Long Island Association, Energy Committee; Fordham Law Alumni Association

TEACHING

Participated in rate making Continuing Legal Education programs sponsored by the American Bar Association and the New York Bar Association; Lectured on land using planning and zoning for NBI

CIVIC

Town of Warwick Conservation Board, Chairman since 2003 (recently completed major investigation into hydraulic fracturing and recommended that the Town Board of Warwick ban same. Local laws were recently enacted banning heavy industrial land uses and the use of production fluids on Town Roads);

Member of Warwick's Comprehensive Planning Committee

Member of Sterling Forest Partnership (2005 to 2006); Member of Warwick Historical Society; Member Orange County Citizens Foundation; Member of Sustainable Warwick; and member Orange County Conservation Advisory Council

APPENDIX E

Proposal of ALTERECHO

ALTERECHO

A TechLaw Division

14500 Avion Parkway, Suite 300
Chantilly, VA 20151
(703) 818-1000
(703) 818-8813 (Fax)
techlawinc.com/alterecho.com

December 10, 2013

Ms. Pamela Kline
Farmers and Families for Livingston
PO Box 478
Claverack, NY 12513

Reference: Livingston Article VII Environmental Assessment

Dear Ms. Kline:

Attached is AlterEcho's proposed Work Plan for an Article VII Environmental Assessment to be conducted pertaining to a proposed power line expansion through the Town of Livingston. Our work will focus on scientific data collection and observation, synthesis of information and interpretation of potential environmental impacts. AlterEcho has conducted hundreds of environmental assessments, including written reports. We have collaborated with local, state and federal agencies, as well as non-profit and commercial clients for 30 years.

Please feel free to contact me at (703) 818-3233, if you have any questions.

Sincerely,

Judy Manley

Judy Manley
Senior VP

Introduction: AlterEcho, a Division of TechLaw, Inc., is pleased to present information regarding our approach and qualifications to provide Farmers and Families For Livingston with a review of applicant documents and an environmental assessment to be conducted on land along a proposed power line expansion through the Town of Livingston. Livingston is a town in Columbia County, New York, and covers 39 square miles. The population was 3,646 at the 2010 census.

The applicants--New York Transmission Owners (Case No. 13-M-0457), NextEra Energy (Case No. 13-T-0455), North American Transmission Corporation and North American Transmission , LLC (Case No. 13-T-0454) and Boundless Energy NE (13-T-0461) have submitted applications to the Public Service Commission under Article VII of The New York Public Service Law. The primary route for the new line includes a 150-foot-wide right-of-way that traverses the Town of Livingston (8.3 miles). The companies propose to install a new 345 kV line on newly acquired land. The right-of-way passes through valuable farmlands, wetlands, historic homes and villages. AlterEcho has the expertise and experience to research and critically assess the implications of the expansion on ecological resources and human health impacts of these power lines on the Livingston community in concert with the economic, social and cultural impact on the local community.

To grant a Certificate the Commission must determine the nature of the probably environmental impact and the extent to which the facility minimizes adverse environmental impact, given environmental and other pertinent considerations. Article VII provides for input by stakeholders including an evaluation of the specific potentially significant environmental impacts. This could include safety and security; noise and vibrations; cultural resources; geology, soils; terrestrial ecology and wetlands; water resources and aquatic ecology; visual impacts; effects on transportation; and effect on communications.

AlterEcho, though its parent company, TechLaw, has supported more than 70 EPA and State environmental contracts covering a variety of environmental statutes including CWA, CAA, RCRA and CERCLA. Through these contracts, our technical consultants have amassed extensive expertise in environmental program requirements and have substantively contributed, through the collection of field and research data, to the assessment of risk at sites. AlterEcho is highly skilled in the collection and interpretation of scientific data and the pragmatic decision-making process to underpin solutions for communities.

AlterEcho has provided this support at thousands of sites addressing myriad challenges among residential, industrial and military complexes. We have also conducted approximately 1,000 site assessments for commercial entities, including wireless companies; and local, state and federal agencies. AlterEcho has provided environmental assessment, enforcement, and compliance support to EPA and State regulatory agencies since the early 1980s, and continues to do so today in 9 out of 10 EPA Regions, including New York State through EPA Region 2.

AlterEcho has also added a team member, Live Oak Associates (LOA), which has extensive experience working on public utility issues. A core part of their business is analyzing the affects on a region's biological resources from linear projects including electrical transmission facilities, substations, natural gas facilities, telecommunications towers and lines, water delivery systems, and rail transit projects.

Scope and Approach:

AlterEcho proposes to develop a report to support the critical review of the environmental impact of expansion of the existing power line Right-of-Way will have on the local Livingston community and the ecosystem as required under the New York State Public Service Law Sections 120-130 and 16 NYCRR Parts

85-88. This work will benefit all stakeholders and complete the PSC record. The report will present a review of the Part A and B of the application focused on the required summary of any studies made of the environmental impact of the facility and a description of these studies. We will review the following application sections:

- § 86.2 Exhibit 1: General Information Regarding the Application
- § 86.3 Exhibit 2: Location of Facilities
- § 86.4 Exhibit 3: Alternatives
- § 86.5 Exhibit 4: Environmental Impact
- § 86.6 Exhibit 5: Design Drawings
- § 86.7 Exhibit 6: Economic Effects of Proposed Facility
- § 86.8 Exhibit 7: Local Ordinances
- § 88.1 Exhibit E-l: Description of Proposed Transmission Line
- § 88.2 Exhibit E-2: Other Facilities
- § 88.3 Exhibit E-3: Underground Construction
- § 88.4 Exhibit E-4: Engineering Justification
- § 88.5 Exhibit E-5: Effect on Communications
- § 88.6 Exhibit E-6: Effect on Transportation

Our report will address gaps in knowledge and information and also include an independent evaluation of the environmental impacts of the expansion line, including alternative options proposed in the application.

After review of the existing reports, AlterEcho will determine if additional research is necessary to supplement the existing record. Any additional research will extend and complement the body of original research available. Additional information will be gathered for expert review on the location of sensitive areas of the Town from environmental, historical, cultural and aesthetic perspectives. More specifically, the metrics that will be considered for evaluation include the following:

- human health (risk, hazard, noise, safety)
- ecological (mitigation measures, estimated disturbances, vegetation/noxious weeds/rare plants, fisheries, wildlife, land use)
- air/water (soil erosion/contamination, hydrology/water quality)
- cultural (archaeological sites; historic structures, buildings, or objects; and traditional cultural properties)
- socio/economic impacts (local economy, quality of life, residential development and growth, property values, cost to customers, environmental justice)

Based on the requirements for Exhibit 4, AlterEcho will review the descriptions of any study which has been made of the impact of the proposed facility on the environment, including the methods employed in making that study and a summary of its findings. This will include environmental impact analyses including an assessment of impacts on ecological, land use, cultural and visual resources; land use impacts including noise analysis and analysis of consistency with existing, planned and proposed uses and adopted land use plans; and demonstrations of consistency with Coastal Zone policies, Local Waterfront Revitalization Programs, and designated Inland Waterway areas. We will also review:

- what changes, if any, the construction and operation of the proposed facility might induce in the physical or biological processes of plant life or wildlife through any permanent or significant temporary change in the hydrology, topography or soil of the area.
- what efforts, if any, have been made to assure:
  (i) that any right-of-way avoids scenic, recreational and historic areas;
  (ii) that any right-of-way will be routed to minimize its visibility from areas of public view;

(iii) that any right-of-way has been planned to avoid heavily timbered areas, high points, ridge lines and steep slopes; and
(iv) that the selection of any proposed right-of-way preserves the natural landscape and minimizes conflict with any present or future planned land use;

- what, if any, plans have been formulated to keep any right-of-way clearing to the minimum width necessary to prevent interference of vegetation with the proposed facility;
- what, if any, schedule or method of clearing the right-of-way has been formulated to take into account soil stability, protection of natural vegetation, and the protection of adjacent resources (including the protection of any natural habitat for wildlife);
- what, if any, plans have been made to protect vegetation and topsoil not cleared, from damage from construction and operation of the facility;
- what, if any, provision has been made to protect fish and other aquatic life from harm from the use of explosives or pollutants in or near streams and other bodies of water;
- what, if any, pesticide or herbicide will be used in construction or maintenance of the proposed facility (including the volumes and manner of use);
- what, if any, plans have been made to locate and design appurtenant structures to minimize the environmental impact of the structures (including visual and noise disturbance); and
- what, if any, provisions have been made for cleanup and restoration of the project area after construction.
- what, if any, provisions have been made to avoid clearance of the entire right-of-way. If the clearance proposed will go to the mineral soil, the applicant shall state:
  (i) the width of the clearance;
  (ii) what, if any, provisions have been made for the replacement of topsoil removal during construction;
  (iii) what, if any, provisions have been made for removing excess soil excavated during construction; and
  (iv) what, if any, plans have been made for stabilizing the cleared area with vegetation and erosion control devices.
- for any portion of the proposed facility that will be constructed in or adjacent to a stream or other body of water:
  (i) what, if any, plans have been made to prevent erosion of the banks;
  (ii) what, if any, techniques (such as cofferdams) will be used; and
  (iii) what, if any, plans have been made to use the water from such streams or other bodies of water for pipe-testing or other purposes (including volumes of water involved and methods for release of water once used).

The Report will include:

- a concise description of the proposed action, its purpose, public need and benefits, including social and economic considerations;
- a concise description of the environmental setting of the areas to be affected, sufficient to understand the impacts of the proposed action;
- a statement and evaluation of the potential significant adverse environmental impacts at a level of detail that reflects the severity of the impacts and the reasonable likelihood of their occurrence;
  - reasonably related short-term and long-term impacts, cumulative impacts and other associated environmental impacts;
  - adverse environmental impacts that cannot be avoided or adequately mitigated if the proposed action is implemented;
  - any irreversible and irretrievable commitments of environmental resources that would be associated with the proposed action should it be imposed;

- impacts of public acquisitions of land or interests in land or funding for non-farm development on lands currently used in agricultural production and unique and irreplaceable agricultural lands within agricultural districts;

A draft Table of Contents for the report is attached.

AlterEcho will be responsible for the entire project. We will staff the various tasks and utilize LOA and/or other subcontractors as needed to address specialty technical areas. The review of existing documents will take 30 to 45 days. If additional research is required, including biological field work, to address the site-specific environmental impact, the schedule will take an additional 90 days, contingent upon weather considerations for field work. Please note that the schedule will be dependent upon submittal timing of Application materials.

Personnel: Our team includes a broad range of disciplines – biology, archeology, history, toxicology, engineering, and geology/hydrogeology from general wildlife and plant ecology to specializations including herpetology, entomology, ornithology, and aquatic and wetland ecology.

AlterEcho staff members have previously supported study and review of community-level health effects on behalf of the residents of Columbia County, NY. Our staff members have previously teamed with the Friends of Hudson and Columbia-Hudson Partnership to assess the implications of a coal-fired cement plant expansion within the City of Hudson and Town of Greenport, NY. These efforts included a comprehensive assessment of risk predicated on exposure to products of incomplete combustion and dispersion and deposition modeling of heavy metals, polynuclear aromatic hydrocarbons, dioxins/furans and priority air pollutants, such as NOx.

Resumes for key individuals are attached. They include:

Individual	Degree	Discipline/Experience
Travis Kline	MEM., Environmental Toxicology; BA, Cellular Biology/Genetics	20 years of human health risk assessment, data analysis and interpretation and sampling and analysis plan preparation experience
Stan Pauwels	PhD, Zoology; MS, Zoology; BA, Biology and Environmental Science	22 years of ecological risk assessment, ecotoxicology, data analysis and interpretation, and field support experience
Brad Martin, PE	BS, Civil Engineering	19 years of consulting engineering experience in environmental assessment, modeling and natural resources preservation and remediation
Indira Balkissoon	MPA, Public Administration; MS, Geology; BS, Geology, BA, Anthropology	27 years of experience in the management of environmental assessment projects, community outreach and the application of geological science; also a trained facilitator
David J. Hartesveldt	Graduate Studies, Botany; BA, History	28 years of experience with more than 2,000 projects characterizing the biological setting of project sites and planning areas, determining project impacts, including substation and transmission properties

Environmental Policy Related to Public Utilities: AlterEcho has also added a team member, Live Oak Associates (LOA), which has extensive experience working on public utility issues. LOA provides a comprehensive range of biological consulting services to private, government and nongovernmental organizations, including impact analyses, biological resource technical support, environmental permitting, ecosystem management and restoration, environmental training and compliance monitoring and inspections. A core part of their business is analyzing the affects on a region's biological resources from

linear projects (many of which are within the purview of the California Public Utility Commission) including electrical transmission facilities, substations, natural gas facilities, telecommunications towers and lines, water delivery systems, and rail transit projects. LOA is conducting an expansive range of suitable studies and analysis for over 100,000 acres of solar farms within agricultural areas of Central and Southern California. These not only include evaluating the conversion of farm land to renewable energy facilities, but also evaluating important transmission corridor alternatives to connect these solar farms to the grid. An illustration of LOA's capacity is the company's current effort to assist the High Speed Train Authority in California to obtain endangered species permits from state and federal agencies for various segments of the proposed HST.

LOA has also provided assistance to a large farming coalition for one of the segments (Fresno to Bakersfield) whereby their work provided adequate evidence that the alternative preferred by the farming community, was in fact the environmentally superior alternative. These efforts required LOA to generate reports following specific formats and relying on specific analytical criteria for a host of clients, agencies, and environmental processes, including those dictated by local, state, federal regulatory agencies (e.g., CPUC, NYPSC, FERC, USACE, USFWS, etc.). For these reasons, clients count on the LOA team of senior biologists and skilled technical and support staff for accurate data collection, sound scientific analysis, compliance support and professional document preparation in order to protect sensitive biotic resources and meet environmental regulatory requirements. As mentioned above, LOA has previously evaluated utility and power line placement on behalf of communities and is well acquainted with related social, economic, and environmental challenges.

AlterEcho Background:

AlterEcho has conducted environmental assessments for federal, state and local governmental agencies, as well as for commercial clients. Our assessment experience is substantial, as we have completed over 1,000 assessments nationwide, including work in New York State coordinating compliance under the auspices of NYDEC, NYDOH and USEPA Region 2. Aside from characterization of sources, release mechanisms, exposure routes and receptor populations as they relate to chemical or radiological risk and hazard, our support has involved additional review capacities pertinent to this type of assessment:

- locating and reviewing existing site, facility, and/or release (fugitive emissions or radiation) and use data;
- locating and reviewing files of site owner(s)/site operator(s) and other documents relating to past operations (e.g., deeds, court transcripts);
- conducting interviews with site owner(s)/operator(s), state/local officials, residents, and other interested parties; and,
- identifying site characteristics (e.g., populations, sensitive environments, site usage, hydrogeological and meteorological conditions, and other pertinent site information).

For example, AlterEcho performed Environmental Impact Statements (EIS), Environmental Site Assessments (ESAs), surveys, audits, and multimedia sampling for a mobile wireless company for six years. We have a broad familiarity with the specific regulatory, environmental, and liability issues unique to utilities, including those of access and development under programs such as CERCLA, the Federal Communications Commission's (FCC's) environmental policy, and the ASTM standards. Our work has included conducting legal and regulatory research for various utilities and related industries.

AlterEcho has conducted Site Assessments and NEPA assessments for the Army Air Force Exchange Service (AAFES). The work for AAFES included Phase I assessments, as well as wildlife and wetlands impact studies; historical aerial photograph analysis; archeological evaluation; air quality studies, and noise studies.

Another example of our EIS support includes preparing a comprehensive Environmental Procedures Manual to guide efforts from project identification, through planning, design, and construction for a state transportation agency. This Manual provided direction, guidance, and tools. The chapters of this Manual included:

- Project Identification and Development
- NEPA Process Options
- Agency Coordination for EISs
- Preparation of Environmental Documentation
- Impact Analysis (includes RCRA, CAA, CWA (including MS4), ESA, CERCLA, Flood plains, Cultural Resources, Environmental Justice, Noise, Social and Community Impacts, and Pedestrian and Bicycle Paths)
- Public Involvement Process
- Environmental Permits

Through our dedicated Toxicology and Risk Assessment (TARA) Group (please see *Risk Assessment* inset above), AlterEcho has also successfully developed or provided senior technical review and oversight more than 1,000 discrete human health and ecological risk assessment sites and studies for chemical and radiological constituents. We have been contracted by EPA and many states to develop human health and ecological risk assessment guidance and routinely serve as experts in support and vetting of risk assessment policies and procedures. We have performed deterministic and probabilistic risk assessment studies in every region of the US, including Alaska, Puerto Rico, the US Virgin Islands, Hawaii and Guam. We have addressed all environmental media, including air, surface and subsurface soil, groundwater, surface water, sediments, and ecological receptors and food webs. Contaminants of concern span the broad categories of chemical and radiological constituents regulated under RCRA, CERCLA, and other state and federal programs.

Please refer to the AlterEcho website for additional information: www.AlterEcho.com.
For additional information about TechLaw, Inc. and the TechLaw Holdings companies, please refer to www.TechLawInc.com and www.TechLawHoldings.com.

RISK ASSESSMENT

TechLaw specializes in evaluating human health and ecological risk assessments that support RI/FS and RD activities at CERCLA and RCRA sites. At hundreds of sites (including virtually every facility noted in this discussion), in all 10 EPA Regions, TechLaw's Toxicology and Risk Assessment (TARA) Group has provided senior technical oversight, development of national, regional and state-specific risk assessment guidance and training courses and helped to negotiate health-protective and cost-effective risk management plans, options and novel solutions to myriad chemical exposure challenges. TechLaw's TARA group has developed holistic risk assessment management programs for individual sites as well as administrative authorities, assisted in the development and implementation of provisional toxicity criteria, and helped to develop and implement novel risk management prioritization and management strategies. The depth and breadth of TechLaw's deterministic and probabilistic risk assessment capabilities are unparalleled in the industry. Based on three decades of the highest level of support and senior technical oversight, TechLaw has been at the forefront of virtually every major environmental exposure challenge from anthropogenic and naturally-occurring constituents, both chemical and radiological.

The risk assessment approach as practiced by TechLaw has a strong foundation in established and well-formed toxicological principles, in addition to developing scientific understanding and innovative technologies. Scientific review of chemical causation, hazard identification and dose-response evaluation are combined with widely accepted EPA guidance to ensure complete and defensible results, upon which risk management decisions may be reliably based. TechLaw utilizes quantitative- and qualitatively-based evaluations of the potential for chemical concentrations in environmental media to elicit adverse human or ecological health effects. TechLaw's expertise in quantitatively based fate and transport models designed to evaluate complex equilibria associated with processes like leaching and mixing, volatilization, biodegradation, and dispersion and deposition along with food chain effects ensure the TARA Group is able to seamlessly integrate with investigation and remediation entities and resources, integrating exposure assessment and health-protectiveness into the corrective action process. A strong overall background in statistics assures a technically defensible basis for issues such as the development of the most applicable sampling regime or development of exposure point concentrations in all media and an important vehicle for evaluation of final risk estimates in development of remedial options and risk management decisions.

Costing: With respect to the technical aspects of the report, AlterEcho provides the following costs estimate. It should be noted that we will bill on a time and materials basis, so if the review of existing documents does not indicate the need for additional research, those costs would not be incurred. The initial review of documents would be spread across the items/areas below.

- Assess impact to the local ecosystem, inclusive of threats to endangered species and sensitive habitats ($39,000)
- Assess the impact to human health ($30,400)
- Assess the impact of alternatives on air and water resources ($9,750)
- Assess the impact to historic and cultural sites ($39,000)
- Assess the Social and Economic impact ($19,500)
- Comparison of Alternatives Addressing Above Items ($13,000)
- Report Compilation ($7,800)

Based on the scope of the report, AlterEcho has budgeted a cost of $158,450 to complete the proposed report as presented below:

	Expert Consultant	$220/hr	Consultant	$105/hr		
Task	**Hours**	**Costs**	**Hours**	**Cost**	**Total Hours**	**Total Cost per Task**
Ecosystem Impact	120	$26,400	120	$12,600	240	$39,000
Human Health Impact	100	$22,000	80	$8,400	180	$30,400
Air and Water Impact	30	$6,600	30	$3,150	60	$9,750
Historic and Cultural Impact	120	$26,400	120	$12,600	240	$39,000
Social and Economic	60	$13,200	60	$6,300	120	$19,500
Alternatives	40	$8,800	40	$4,200	80	$13,000
Report Compilation	24	$5,280	24	$2,520	48	$7,800
Total Project Hours and Cost					968	$158,450

Attachment 1: Proposed Report Form and Tentative Table of Contents:

APPENDIX F

Proposal of Computer Terrain Mapping

Computer Terrain Mapping Inc.
GIS & Mapping for Land Planning

P.O. Box 4982
Boulder, CO 80306
303-444-1670
www.ctmap.com

December 10, 2013

Dear Ms. Kline,

Thank you for considering Computer Terrain Mapping for the generation of a viewshed analysis for the proposed power line alternatives in Livingston, NY. I have broken down the cost per task. Please call if you have questions.

WORK SCOPE

Viewshed
Generate 2 viewshed analyses, one from each of the proposed power line routes. For the transmission line alternatives, we propose to run the viewsheds from the top of each pole. The resulting "pole viewshed" will provide a good estimate of the visibility of each alternative from the surrounding landscape. The viewshed analyses will be run from 10 miles of each proposed route.

- The client will provide power pole specifications and locations. If this information is not available, we will research the most probable pole type (to estimate height) and spacing for a 345 kV line
- Trees will be considered in the analysis. Tree stands will be identified using 2011 aerial imagery. The client will provide the approximate tree height.
- The resulting analysis will be a frequency seen visibility map.

Cost: $2,400

Map production of (2) 11x 17" .pdf files and (2) 30x40" plots illustrating the analyses results. Map will include:

- Aerial;
- View point locations (poles) and proposed power line;
- Assumed clear-cut area to accommodate power line;
- Key areas of interest;
- (3) distance zones to illustrate distance from lines;
- Cartographic features including, but not limited to: roads, road text and towns.

Cost:
$820

Data Export
Convert viewshed analyses and proposed power line routes to .kmz file format for viewing in Google Earth.
Cost: $600

Visual Simulations
Build 3D models (2 alternatives) of power poles, power line and tree clear-cut areas.
Cost: $1,200

Single Simulation
Site photo is matched to the computer model. Once matched, the image of the 3D model is merged with the site photo. 2 simulations (each alternative) will be generated per image.
Cost /Photo: $800

QuickTime VR movie
20 photographs are taken per photo location (360º photographic coverage of a site taken at 18º increments). Image location is matched with computer model. Each of the 20 images is merged with the computer model then combined into a QuickTime VR movie. 2 movies will be generated per photo location.
Cost/Location: $3,200

Photograph collection
Site photographs will need to be taken to document existing conditions and for use in the simulations mentioned above.
Cost/Site Visit: $2,500

We look forward to working with you on this exciting project.

Thanks and best regards,

Heidi Ochis
Computer Terrain Mapping, Inc
1401 Walnut Street, Suite C
Boulder, CO 80302
303-444-1670

APPENDIX G

Proposal of Larson Fischer Associates

Larson Fisher Associates, Inc.

Historic Preservation and Planning Services

P.O. Box 1394
Woodstock, N.Y. 12498

845-679-5054
www.larsonfisher.com

2 December 2013

Pamela Kline
Farmers and Families for Livingston
P.O. Box 478
Claverack, NY 12513

Dear Ms Kline:

After our discussions with you and a review of materials you provided, we propose the following scope of work and cost estimate for services relating to the project to expand the existing power transmission line right-of-way in the Town of Livingston. Our cost estimate is based on an hourly rate for a time period perceived to be adequate to complete our scope of work. However, as we cannot precisely predict the time required for possible extenuating circumstances in the response to preservation issues raised in the review process, we advise you that final costs may exceed the present estimate.

We propose to provide your organization with the following services.

- Review all existing materials regarding the project and consult with client regarding potential effects on historic buildings and landscapes
- Undertake field trip to get familiarized with historic features in project area and review extent of documentation re NR-listed and NR-eligible structures/resources with NYS SHPO/NPS.
- Participate in one strategy meeting with client and other consultants involved
- Review cultural resource survey materials produced by the project sponsor, provide written comments and consult with client
- Review assessments and mitigation measures proposed by project sponsor, provide written comments and consult with client
- Attend 5 meetings requested or organized by client, including public hearings, and make presentations as required

Cost estimate.

- Larson Fisher Associates will bill for the scope of services detailed above at the rate of $100 per hour. This rate includes travel and other related expenses.
- We estimate the time for our services to amount to 80 hours and cost $8,000.00
- Any additional services or meetings requested and approved by the client will be billed at $100 per hour.

I hope you find this proposal to your satisfaction and look forward to the opportunity of working with you and your organization in the future.

Sincerely,

Neil Larson, President

APPENDIX H

Engagement Letter of Daniel P. Duthie, Esq.

DANIEL P. DUTHIE
Attorney and Counselor at Law
P.O. BOX 8
BELLVALE, NY 10912

845-988-0453
Fax 845-988-0455
duthie@attglobal.net

December 11, 2013

Ms. Pamela Kline
Farmers and Families for Livingston
PO Box 478
Claverack, NY 12513

Re: PSC Cases No. 13-E-0488, 12-T-0502, 13-T-0454, 13-T-0455, 13-M-0457 and 13-T-0461

Dear Pamela:

I want to thank you for considering my firm to provide legal and engineering consulting services to the Farmers and Families for Livingston ("FFL") in connection with the above referenced proposed Article VII transmission line proceedings that are to be considered on a competitive basis on a consolidated record. This engagement letter provides a scope of representation for the Part A segment of this proceeding as it is being developed pursuant to the Public Service Commission's ("Commission") Orders and Administrative Law Judges' Rulings.

Upon your review of the Statement of Client's Rights and the Statement of Client's Responsibilities, enclosed, and your acceptance of this engagement agreement, we will represent FFL and provide technical services in connection with the matters described below.

SCOPE OF REPRESENTATION

We will review the filings of the transmission developers with a view towards determining compliance with the Commission's regulations, 16 NYCRR Parts 85 to 88 (as recently amended). We will conduct an inspection of the current rights-of-way to be expanded and/or new rights-of-way associated with the proposals that may traverse the Town. We will also work with the FFL to understand the potential impacts on your members and their businesses due to the various transmission line proposals. We will work with and coordinate the other professionals to be retained by FFL so that we can develop proposals to eliminate or mitigate those impacts.

We will work with FFL to develop initial comments on scoping that are now due on February 21, 2013. We will review all initial scoping comments from other parties and work with FFL to draft reply comments that are now due on March 21, 2013.

One key aspect of any Article VII proceeding, no less than this unprecedented competitive AC transmission line proceeding, is to establish the need for the transmission line. One concern that is immediately manifest is the

March 21, 2013.

One key aspect of any Article VII proceeding, no less than this unprecedented competitive AC transmission line proceeding, is to establish the need for the transmission line. One concern that is immediately manifest is the baseline on which the NYISO is modeling the various proposals to determine whether the minimum 1,000 MW transfer capability increase for the Central-East constraint is achieved. We will investigate the current and future need for that capacity given that there are other projects attempting to relieve congestion that are not being included in the base-line analysis such as the Champlain Hudson Power Express and the project being sponsored by West Point Partners.

In addition, there have been discussions about repowering some of the generating stations, i.e., Bowline, Lovett and Danskammer, on the west side of the Central-East constraint and south of the UPNY-SENY constraint. We will investigate the City of New York's energy efficiency plans and determine what effect those plans will have on electric demand, along with the various demand side management programs currently available through the New York Independent System Operator, along with the current and projected level of participation in these programs as that bears on the issue of need for additional transmission line capacity.

Finally, we will follow the new Commission Chair's stated policy goal of improving the retail electricity markets by incentivizing local distribution utilities to become "excited" about energy efficiency and demand side management programs. This new policy of enhanced focus on efficiency and load management should in itself alleviate or reduce the current perception of system constraints.

We will attend all procedural and evidentiary conferences and hearings and will attend to such other matters on behalf of the Town as is customary in Article VII proceedings. Those activities are outlined on the proposed budget that is attached providing best estimates of the time each activity will take under varying assumption of best, likely and worst case scenarios.

On some activities, such as the determination of need, we will share the costs with the Town of Milan.

Our services will end upon mutual agreement that we have successfully met your goals or upon your sole determination that our services are no longer required.

FEES, EXPENSES, AND BILLING PRACTICE

Our fees will be billed on the basis of our time charged at the firm's municipal rate of $275.00 per hour for the services of Daniel P. Duthie, Esq. Administrative or court litigation would be charged at $350 per hour. Charges for the services of consultants to be hired, if appropriate, will be billed customary rates not to exceed $200 per hour. We will charge for travel time incurred at one-half the normal hourly rate.

We will charge you for disbursements we incur in the course of this engagement for all necessary travel expenses (including tolls and mileage at standard IRS approved rates per mile for our personal or corporate automobiles), facsimiles, photocopies, postage, out-of-office telephone charges, filing fees, service of process, transcripts, expert testimony, property evaluations, appraisals, etc., and all other fees and costs chargeable to the investigation, negotiation, prosecution, and/or settlement of any litigation, application, contract, or agreement performed for you. All disbursements will be charged at our cost. No disbursement in excess of $500 will be incurred without your express

etc., and all other fees and costs chargeable to the investigation, negotiation, prosecution, and/or settlement of any litigation, application, contract, or agreement performed for you. All disbursements will be charged at our cost. No disbursement in excess of $500 will be incurred without your express authorization.

We intend to bill you monthly. Expenses will be separately stated on each bill. Failure to pay the monthly billing within a reasonable period will relieve the firm, at its option, of further responsibilities. Interest on unpaid balance in excess of 30 days will be charged and payable at a compounded rate of one percent per month.

We require a retainer or minimum fee for this engagement of $7,500 that may be paid three installments starting with $2,500. When a retainer is required it is to be applied to our time charges and is intended to operate as follows:

a. The time initially expended on your matter will be charged against the minimum fee. However, if your matter is concluded or you decide to terminate our services in less time than would be required to expend the minimum fee on the basis of time alone, we shall refund the balance of the minimum fee less any disbursements actually incurred.

b. Only a fair and reasonable fee will be incurred by your corporation. The elements of a reasonable fee are set forth in DR 2-106 of the Lawyer's Code of Professional Responsibility, a copy of which provision will be furnished to you upon request.

ARBITRATION

In the event that a dispute arises between us relating to our fees, you may have the right to arbitration of the dispute pursuant to Part 137 of the Rules of the Chief Administrator of the Courts.

Please sign both copies of this agreement and return one copy in the enclosed postage prepaid and self-addressed envelope.

Dated: December 11, 2013

Signatures: _____ _____

Daniel P. Duthie On behalf of the Farmers and Friends for Livingston

Statement of Client's Rights

(As adopted by the Administrative Board of the Courts)

1. You are entitled to be treated with courtesy and consideration at all times by your lawyer and the other lawyers and personnel in your lawyer's office.

2. You are entitled to an attorney capable of handling your legal matter competently and diligently, in accordance with the highest standards of the profession. If you are not satisfied with how your matter is being handled, you have the right to withdraw from the attorney-client relationship at any time (court approval may be required in some matters and your attorney may have a claim against you for the value of services rendered to you up to the point of discharge).

3. You are entitled to your lawyer's independent professional judgment and undivided loyalty uncompromised by conflicts of interest.

4. You are entitled to be charged a reasonable fee and to have your lawyer explain at the outset how the fee will be computed and the manner and frequency of billing. You are entitled to request and receive a written itemized bill from your attorney at reasonable intervals. You may refuse to enter into any fee arrangement that you find unsatisfactory. In the event of a fee dispute, you may have the right to seek arbitration; your attorney will provide you with the necessary information regarding arbitration in the event of a fee dispute, or upon your request.

5. You are entitled to have your questions and concerns addressed in a prompt manner and to have your telephone calls returned promptly.

6. You are entitled to be kept informed as to the status of your matter and to request and receive copies of papers. You are entitled to sufficient information to allow you to participate meaningfully in the development of your matter.

7. You are entitled to have your legitimate objectives respected by your attorney, including whether or not to settle your matter (court approval of a settlement is required in some matters).

8. You have the right to privacy in your dealings with your lawyer and to have your secrets and confidences preserved to the extent permitted by law.

9. You are entitled to have your attorney conduct himself or herself ethically in accordance with the Code of Professional Responsibility.

10. You may not be refused representation on the basis of race, creed, color, age, religion, sex, sexual orientation, national origin, or disability.

Statement of Client's Responsibilities

(As adopted by the Administrative Board of the Courts)

Reciprocal trust, courtesy and respect are the hallmarks of the attorneyclient relationship. Within that relationship, the client looks to the attorney for expertise, education, sound judgment, protection, advocacy, and representation. These expectations can be achieved only if the client fulfills the following responsibilities:

1. The client is expected to treat the lawyer and the lawyer's staff with courtesy and consideration.

2. The client's relationship with the lawyer must be one of complete candor and the lawyer must be apprised of all facts or circumstances of the matter being handled by the lawyer even if the client believes that those facts may be detrimental to the client's cause or unflattering to the client.

3. The client must honor the fee arrangement as agreed to with the lawyer, in accordance with law.

4. All bills for services rendered which are tendered to the client pursuant to the agreed

to the client.

3. The client must honor the fee arrangement as agreed to with the lawyer, in accordance with law.

4. All bills for services rendered which are tendered to the client pursuant to the agreed upon fee arrangement should be paid promptly.

5. The client may withdraw from the attorneyclient relationship, subject to financial commitments under the agreed to fee arrangement, and, in certain circumstances, subject to court approval.

6. Although the client should expect that his or her correspondence, telephone calls, and other communications will be answered within a reasonable time frame, the client should recognize that the lawyer has other clients equally demanding of the lawyer's time and attention.

7. The client should maintain contact with the lawyer, promptly notify the lawyer of any change in telephone number or address, and respond promptly to a request by the lawyer for information and cooperation.

8. The client must realize that the lawyer need respect only legitimate objectives of the client and that the lawyer will not advocate or propose positions that are unprofessional or contrary to law or the Lawyer's Code of Professional responsibility.

9. The lawyer may be unable to accept a case if the lawyer has previous professional commitments that will result in inadequate time being available for the proper representation of a new client.

10. A lawyer is under no obligation to accept a client if the lawyer determines that the cause of the client is without merit, a conflict of interest would exist, or that a suitable working relationship with the client is not likely.