

Eron J. Dodak, R.G., L.H.G.

Senior Consultant



Education and Credentials

M.S., Geology, University of North Dakota, Grand Forks, North Dakota, 1996

B.S., Geology, Portland State University, Portland, Oregon, 1993

Registered Geologist, Oregon (No. G2023)

Licensed Hydrogeologist and Geologist, Washington (No. 2643)

Licensed Professional Geologist, Minnesota (No. 57353)

Registered Professional Geologist, Georgia (No. PG2291)

Continuing Education and Training

Hazardous Waste Operations and Emergency Response 40-Hour Certification (1998; refreshers 2001–current)

Hazardous Waste Operations and Emergency Response Supervisor 8-Hour Certification (2001)

First Aid/CPR/AED Training (2001–present)

Confined Space Entry (2007); DOT HAZMAT Training (2013)

GPS Mapping for GIS with TerraSync and Pathfinder Office (2007)

Professional Affiliations

National Ground Water Association

319 SW Washington Street
Suite 1150
Portland, OR 97204

Professional Profile

Mr. Eron Dodak is a licensed geologist and hydrogeologist with 20 years of environmental consulting experience. He has managed a variety of projects ranging from small site assessments to large sediment investigations under RCRA and state regulatory programs. He has prepared expert opinions and provided litigation support focused on identifying contaminant sources and pathways. Mr. Dodak has also performed groundwater flow and solute transport modeling, using both deterministic and stochastic techniques.

Mr. Dodak has extensive experience managing and leading soil, groundwater, sediment, and surface water investigations at sites throughout the United States, using a wide variety of sampling methodologies. He has characterized complex sites affected by petroleum hydrocarbons, wood-treating chemicals, chlorinated solvents and other volatile organic compounds (VOCs), pesticides, PCBs, perfluorochemicals, and metals to support remedial investigations and feasibility studies.

Mr. Dodak has conducted a broad range of hydrogeologic data analyses including aquifer testing, tidal influence studies, and capture zone analyses. He has led investigations on sites with complex hydrogeologic systems that have multiple groundwater zones with both nonaqueous-phase liquid (NAPL) and dissolved-phase constituents. Mr. Dodak has designed remediation extraction wells with capacities of up to 500 gallons per minute. He has also supported groundwater remediation at a number of sites affected by chlorinated solvents and other VOCs, petroleum hydrocarbons, metals, and perfluorochemicals.

Relevant Experience

Upland Investigations and Feasibility Studies

Environmental Site Assessment (ESA) and Source Control Evaluation (SCE), Portland, Oregon—Managed a Phase II ESA and SCE on a small, former industrial property on the Willamette River. Drafted three work plans and conducted a field investigation that included soil, reconnaissance groundwater, dry well sediment, and stormwater sampling. The investigation included sampling associated with the closure of a septic tank and cesspool dry well,

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through the Oregon Department of Environmental Quality's (DEQ's) underground injection control program. The analytical results were screened against multiple criteria for the erodible soil, groundwater, and stormwater pathways as part of the source control evaluation for the site. Prepared a Phase II ESA and SCE report that included a weight-of-evidence analysis for each contaminant pathway following DEQ's Joint Source Control Strategy guidance document. Based on the investigation and source control efforts, DEQ issued a "no further action" letter for the property.

Soil and Groundwater Investigation, Tacoma, Washington—Managed soil and groundwater investigations that were conducted to delineate historical chemicals of potential concern at the Pier 23 facility on Commencement Bay, including VOCs, PAHs, PCBs, metals, and petroleum-range hydrocarbons. Another purpose of the groundwater investigation was to determine if chemicals of potential concern exceeding screening level values (SLVs) in groundwater posed a recontamination risk to sediments following a removal action at the site. The groundwater investigation included the installation, development, and sampling of five monitoring well pairs screened in two groundwater zones. Aquifer tests were conducted to estimate the hydraulic conductivity of the shallow groundwater zone and transmissivity of the deep groundwater zone. A tidal influence study was conducted to calculate the mean hydraulic head at each well and estimate the groundwater flow direction and hydraulic gradient across the site. These data were used as input parameters in the EPA BIOSCREEN groundwater model to estimate the mobility of indeno[1,2,3-cd]pyrene, a PAH that exceeded the corresponding SLV in a shallow zone well. The modeling demonstrated that there was no recontamination risk to sediments from this PAH.

Groundwater Tidal Influence Study and Aquifer Testing, Tacoma, Washington—Served as task manager for a tidal influence study and slug testing at the Slip 1 Port of Tacoma facility on Commencement Bay. Drafted the work plan and led the fieldwork for the slug testing and the tidal influence study. Analyzed the slug test data using AQTESOLV software and the tidal influence study data using the Serfes filtering method. The data will be used to estimate a range of groundwater flow rates that will be used to assess an appropriate long-term groundwater monitoring frequency.

Soil and Groundwater Investigation, Centralia, Washington—Managing soil and groundwater investigations in several areas of concern at a former veneer mill. The chemicals of concern are primarily pentachlorophenol (PCP), total petroleum hydrocarbons (TPH), and lead. Conducted an investigation to develop site-specific Model Toxics Control Act (MTCA) Method C cleanup levels (CULs) for TPH in three areas of the site. Delineated PCP and TPH in soil in a former dip tank area using sonic drilling methods and conducted quarterly groundwater monitoring downgradient of the former dip tank area, which confirmed the absence of PCP and TPH in shallow groundwater above MTCA Method A CULs. Delineated lead in soil in the former wigwam burner area and oversaw a statistical analysis, which demonstrated that the MTCA Method C CUL was met for this area. Assisted with the development of preliminary remedial options and costs to remediate the site to MTCA Method C standards.



Hydrogeology Support, Brunswick, Georgia—Providing hydrogeological support for the remediation of an active wood rosin and turpentine manufacturing site with chlorinated solvent and other VOC plumes in multiple groundwater zones. Reviewed previously proposed interim corrective actions and assisted with the development of an alternate integrated remedial approach to address offsite plume migration and minimize third-party litigation risks for the former site owner. Assisting with the reinterpretation of the conceptual site model for groundwater to support the alternate integrated remedial approach.

Remedial Investigation at a City Park, Bellingham, Washington—Directed the fieldwork for the remedial investigation of a site with wood treatment chemical contamination (i.e., creosote, diesel, pentachlorophenol) and a historical municipal landfill in a city park down-slope of a wood treatment facility. Supervised and logged boreholes in and adjacent to a creek with very limited access, using portable track- and rubber-tire-mounted hollow-stem auger drill rigs to delineate the boundaries of dense, nonaqueous-phase liquid (DNAPL) and dissolved-phase creosote chemicals in soil, sediment, and shallow groundwater. Installed, developed, and sampled monitoring wells and piezometers. Supervised the excavation of reconnaissance test pits to delineate the boundaries of a historical municipal landfill. Supervised and logged the excavation of test pits for soil sampling to characterize shallow soil contamination throughout the site. Prepared portions of the remedial investigation report, detailed hydrogeologic cross sections, conceptual site model diagrams, and addenda to work plans.

Remedial Investigation at a Former Chemical Manufacturing Facility, Portland, Oregon—Provided field team leadership on the upland remedial investigation at the site. Installed temporary piezometers using the direct-push method to precisely determine the groundwater flow direction in a specific area for placement of permanent monitoring wells. Installed a monitoring well in fractured basalt using cable tool drilling and line coring techniques that included three casing step-downs to prevent the vertical migration of chlorobenzene DNAPL and dissolved-phase DDT to the bedrock groundwater zones. Installed a monitoring well using the temporary conductor-casing, hollow-stem auger method. Conducted quarterly groundwater monitoring using low-flow purging techniques and bladder pumps. Constructed detailed hydrogeologic cross sections delineating the distribution of thin silt layers that govern the distribution of DNAPL in the shallow and intermediate groundwater zones. Collected sediment samples from a number of catch basins and stormwater samples from the Parshall flume structures on the outfalls in support of a stormwater interim remedial measure. Prepared a groundwater source control evaluation following DEQ's Joint Source Control Strategy guidance document.

Remedial Investigation at a Chlorinated Solvent Site, Milwaukie, Oregon—Provided field team leadership and technical support for the remedial investigation of a site with chlorinated solvent contamination (i.e., TCE; *cis*-1,2-DCE; and vinyl chloride) in separate shallow and deep groundwater systems. Prepared detailed documentation in support of ongoing litigation. Supervised and logged direct-push probes (Geoprobe®), cable tool drilling, and monitoring well installation to characterize both shallow and deep zone contamination. Supervised the excavation of possible contaminant source area locations. Conducted quarterly groundwater monitoring using low-flow purging techniques with peristaltic pumps. Scheduled and coordinated field activities



conducted by two consulting firms and multiple subcontractors. Prepared letters, quarterly groundwater monitoring reports, memoranda, and other documentation in support of the remedial investigation and other litigation support activities. Researched regional TCE contamination sources in the vicinity of two municipal drinking water wells located near the site.

Environmental Monitoring at a Former Wood-Waste Landfill Facility, Oakridge, Oregon—Managed the environmental monitoring program at a former wood waste landfill facility. Analyzed field and analytical data to modify an existing environmental monitoring plan for the site that included a reduced list of analytes. Performed groundwater and surface water sampling. Prepared annual environmental monitoring reports that included statistical analysis in accordance with the solid waste disposal site closure permit. Based on the recommendations provided in the 2007 annual environmental monitoring report, DEQ allowed the landfill owner to discontinue all groundwater and surface water monitoring at the site and reduce the frequency of landfill cap inspections.

Acid-Rock Drainage Investigation, Prince of Wales Island, Alaska—Managed a quick turnaround-time project that consisted of reviewing reports and providing recommendations on a groundwater study to delineate the extent of acid-rock drainage associated with fill beneath a road.

Emergency Response at Bulk Chemical Terminal, New Orleans, Louisiana—Provided environmental monitoring and data analysis related to the emergency response and cleanup of a chemical spill caused by flooding of a bulk chemical terminal during Hurricane Isaac. Developed a sampling and analysis plan for a tank farm, in support of assessing preliminary remedial options, and coordinated with emergency response contractors. Drafted a storm surge event conceptual site model that included release and fate and transport processes for each chemical involved. Assisted with the preparation of a risk evaluation / corrective action program work plan to address soil and groundwater contamination resulting from the release.

Hydrogeologic Support at a Former Rail Yard, Portland, Oregon—Provided technical support for a 26-acre former rail yard property that is being redeveloped into high-density residential, commercial, and parkland use. Developed remediation and monitoring costs projected for 30 years for various scenarios in support of a decision-tree matrix. Updated a groundwater closeout report and assessed pathways from the former rail yard to a nearby river.

Aquifer Test for a Large Open-Pit Gold Mine, Nevada—Participated in the field effort for a 4-week constant-rate aquifer test to evaluate mine dewatering, in support of a hydrologic assessment of a property undergoing advanced-stage mineral exploration. The fieldwork included monitoring two pumping wells, estimating flow rate at a nearby creek where the aquifer test water was discharged, manually collecting water level and transducer data at 11 monitoring wells and geotechnical boreholes screened in the alluvial and bedrock hydrogeologic zones, and collecting water quality samples from the pumping wells and creek where the aquifer test water was discharged.



Background Monitoring at a Copper and Gold Prospect, Prince of Wales Island, Alaska—Installed, developed, and sampled bedrock monitoring wells at a copper- and gold-rich volcanogenic massive sulfide prospect. The wells were installed to ascertain background metal concentrations in groundwater. Advised the client on well design issues and groundwater sampling procedures.

Road Extension Investigation, Bellingham, Washington—Conducted an ESA in support of a proposed road extension. Advanced two boreholes to assess soil quality in the vicinity of a box culvert and excavated six test pits to assess shallow soil quality adjacent to existing railroad tracks along the proposed road alignment. Prepared a report summarizing the results of the investigation.

Remedial Investigation at a Steel Mill, Portland, Oregon—Supervised and logged direct-push boreholes for collection of soil and grab groundwater samples to delineate metals, PAHs, and PCBs at the site. Logged, installed, and developed a number of shallow groundwater monitoring wells. Conducted groundwater sampling using bladder and peristaltic pumps. Located, designed, and installed a stilling well on a dock in the Willamette River. Constructed a cross section delineating the shallow hydrogeologic units across the site.

Environmental Investigation at a Paint Manufacturing and Mixing Facility, Portland, Oregon—Supervised, logged, installed, developed, and sampled several wells at the site using direct-push probing techniques. Collected soil samples to delineate the vertical and horizontal distribution of paint manufacturing VOCs in the subsurface. Analyzed the data and prepared a site investigation report for the facility. The results of the investigation demonstrated that groundwater had not been impacted from releases related to the former paint manufacturing USTs at the site.

Groundwater Monitoring at a Former Mercury Processing and Reclamation Plant, Carlstadt, New Jersey—Provided oversight for groundwater monitoring using the “clean hands” technique for attaining low detection limits for mercury. Modified a number of cross sections constructed throughout the site to include additional stratigraphic detail.

Geotechnical and Environmental Investigation at a Former Ship Manufacturing Site, Portland, Oregon—Provided support on a geotechnical and environmental investigation at the site. Supervised mud rotary drilling to determine the depth of a specific geologic formation, collected Shelby tube samples for *in situ* physical soil analyses, and collected soil samples using a standard penetrometer test sampler for grain size analysis.

Leaking Underground Storage Tank (LUST) Investigations, Oregon and Washington—Provided support on subsurface investigations of LUST sites in northwestern Oregon and southwestern Washington. Supervised and assisted in monitoring well installation using hollow-stem auger, hand auger, and direct-push methods. Collected environmental and geotechnical soil samples and logged soil borings using the ASTM International (ASTM) soil classification system. Collected confirmation soil samples for decommissioning USTs. Wrote a LUST decommissioning and investigation report for a site in West Linn, Oregon. Conducted quarterly groundwater monitoring and prepared groundwater monitoring reports. Produced scaled site maps and borehole logs for several sites using Visio drawing software.



Upland Remediation

Groundwater Remediation Support at a Former Zinc Smelter Site, Blackwell, Oklahoma—

Designed, installed, and developed a number of 6-inch-diameter groundwater extraction wells to capture contaminated groundwater that was infiltrating sewer pipes. Conducted step drawdown pump tests on the extraction wells to estimate well efficiency and calculate aquifer parameters. Wrote a well completion report for the installation and development of the extraction wells and associated piezometers. Collected aquifer soil samples using the direct-push probing method and analyzed the pore water for metals. Installed an array of injection and multiport monitoring wells and injection wells for a glucose injection pilot study to remediate zinc and cadmium in shallow groundwater. Conducted a shallow reconnaissance groundwater investigation to determine the placement of sentinel monitoring wells at the site. Installed and developed sentinel monitoring wells and conducted pump tests during the development of the wells to provide a rough estimate of aquifer parameters. Led a soil coring program to assist in identifying contaminant source areas and followed up with the collection of large-volume soil samples (confining layer clay and aquifer sand) from the source area for remediation pilot studies. Oversaw repairs to groundwater extraction wells and assessed and solved problems associated with pressure transducers deployed in wells throughout the site. Provided oversight of an elevation survey of storm sewer pipe inverts in approximately 50 manholes to determine the elevation of a storm sewer pipe system and to assess the potential vulnerability of the system to infiltration of shallow groundwater contaminated with metals. Oversaw a smoke test conducted along a section of storm sewer pipe slated for decommissioning to determine how the pipes, inverts, and catch basins were connected.

Groundwater Remediation Support at a Manufacturing Facility, Cottage Grove, Minnesota—

Developed well specifications and a driller's scope of work for the installation of an extraction well to capture perfluorochemicals downgradient of a former disposal site. Oversaw the drilling of the extraction well using dual-rotary reverse circulation drilling methods. Led the fieldwork for step-drawdown and constant-rate (68-hour) pump tests on the extraction well. Conducted a reconnaissance groundwater sampling investigation to assess the vertical distribution of perfluorochemical concentrations in shallow groundwater in support of the design of an extraction wellfield. Designed groundwater remediation extraction wells with capacities ranging from 100 to 500 gallons per minute.

Pilot Study at a Former Chemical Manufacturing Facility, Portland, Oregon— Provided field team leadership on the installation of an array of monitoring wells using the hollow-stem auger drilling method for a sodium persulfate pilot study to remediate chlorobenzene in groundwater.

Technical Support for a Chemical Distribution Facility, Santa Ana, California (confidential, ongoing litigation)— Provided oversight of operations and maintenance work on the groundwater and dual-phase extraction treatment system to remediate chlorinated solvents at the facility.

Soil and Groundwater Remediation System Maintenance, Portland, Oregon— Performed routine maintenance on soil and groundwater remediation systems including vapor extraction, air sparging, and pump-and-treat systems. Assisted in the installation of a vapor extraction system at a site with a deep petroleum-impacted vadose zone.



Sediment Investigations and Feasibility Studies

In-Water Engineering Evaluation/Cost Analysis at a Former Chemical Manufacturing Facility, Portland, Oregon—Managed and led the engineering evaluation/cost analysis (EE/CA) for a sediment investigation and surface debris survey. The work was conducted in several phases. Initially, supervised and logged direct-push boreholes through conductor casing from river docks for collection of grab groundwater samples from river sediments. During a later phase, supervised and logged direct-push boreholes using the dual tube method from a barge in the Willamette River for collection of reconnaissance groundwater and sediment samples from river sediments. During the last phase, a barge mounted rotosonic rig was used to advance 36 boreholes to continuously collect river sediments down to bedrock. Conducted a riverbank survey to document baseline salmonid habitat conditions at the site in support of a habitat equivalency analysis. Managed a multidisciplinary team in drafting a sampling plan to characterize sediments and sediment porewater adjacent to the site. Worked with a team of engineers, human health and ecological toxicologists, and chemists to develop technical approaches and memoranda on the evaluation of NAPL, benthic risk, and porewater passive sampling devices. Negotiated with EPA on elements of the sediment and sediment porewater sampling plan and associated memoranda. Provided technical support on the review of EPA's Proposed Plan and Record of Decision for the Portland Harbor Superfund site, which includes the area for which the EE/CA was conducted.

Reservoir Sediment Investigation, Pueblo of Santa Ana, New Mexico—Directed the accumulated sediment investigation throughout a dry reservoir bed covering an area of approximately 2 to 3 square miles. Samples of accumulated sediment were collected to a depth of 20 ft below ground surface from two decision units using direct-push techniques. Large-volume sediment samples were collected from selected boreholes for toxicity tests. The work was conducted under close oversight of U.S. Army Corps of Engineers personnel. In addition to leading the fieldwork, prepared SLV exceedance figures and borehole logs and drafted sections of the field sampling and data screening report.

Terrestrial and Aquatic Biota and Sediment Investigation, Cass Lake, Minnesota—Collected collocated soil/sediment and biota samples for a human health and ecological risk assessment at a former wood treatment facility. Led a sediment investigation along a small creek with limited access to fill data gaps in support of the human health risk assessment.

Transition Zone Water Study at the Portland Harbor Superfund Site, Portland, Oregon—Constructed a manometer to measure differences in hydraulic head between surface water and transition zone groundwater in the Willamette River. Assembled modified Hessler *in situ* water samplers and constructed an argon-sparging system to remove oxygen from the samplers.

West Bay Berth Deeping and Remediation Project, Olympia, Washington—Logged and sampled surface sediments for chemical analysis and subsurface cores for chemical and geotechnical analysis.



Indoor Air and Soil Vapor Intrusion Studies

Remediation System Installation Oversight at a Former Auto Body Repair Facility, Lakewood, Washington—Coordinated and provided oversight on the installation of a subslab depressurization system (SSDS) to address VOCs in subslab vapors beneath a 6,000 ft² building. The SSDS included two vacuum points and four monitoring points. Conducted annual performance monitoring and worked with engineers to address SSDS performance issues.

Indoor Air Vapor Intrusion Monitoring, Milwaukie, Oregon—Provided support for the design and implementation of an indoor air monitoring program at a TCE solvent release site. Developed a work plan to assess subslab soil vapors beneath manufacturing, warehouse, and office buildings. Led the installation of subslab soil vapor probes and collection of two rounds of subslab soil vapor samples. Worked with risk assessors to assess subslab soil vapor risks, using the Johnson and Ettinger vapor intrusion model. The results of the modeling demonstrated that groundwater plumes were not causing an adverse impact on indoor air above acceptable regulatory levels.

Litigation Support

Portland Harbor Superfund Site Allocation, Portland, Oregon (confidential ongoing work)—Involved in the preparation of a number of expert reports for the Portland Harbor site allocation process for a confidential client.

Litigation and Technical Support for a Chemical Distribution Facility, Santa Ana, California (confidential ongoing litigation)—Reviewed reports and provided litigation support that included preparation of materials in support of deposition of the plaintiff's expert. Provided data analysis and strategic support for the site closure process plan. Utilized a simple analytical model to estimate a steady-state capture zone of an extraction well in a confined aquifer. The analytical model was successfully verified using type curves to estimate the extraction well's capture zone. The simple analytical model was a cost-effective method to quickly determine, based on simplifying assumptions, if chlorinated solvents from a nearby site would be captured by the extraction well.

Perchlorate and Chlorinated Solvent Investigation, Santa Clarita, California—Provided litigation and technical support in the planning of a subsurface investigation into the occurrence of perchlorate and chlorinated solvents that have contaminated municipal groundwater wells throughout a city in southern California. Located boreholes throughout the city to identify potential multiple sources of perchlorate and chlorinated solvents. Prepared field sampling and health and safety plans associated with the subsurface investigation. Planned and coordinated fieldwork with multiple subcontractors.

Environmental Due Diligence

Phase I ESAs, Tualatin, Oregon—Conducted and managed Phase I ESAs, in accordance with ASTM E1527-00 guidance, at a printing and graphics facility and a vacant land site. The printing and graphics facility consisted of approximately 4.5 acres that included a small, undeveloped parcel and approximately 49,000 ft² of manufacturing and office space. The vacant land site was bordered by railroad tracks and a high-traffic road.



Phase I ESA, Gresham, Oregon—Served as technical advisor and senior reviewer of a Phase I ESA, in accordance with ASTM E1527-13 guidance, for a property used for processing coffee, tea, and dry foods. The 28-acre property included a 324,000 ft² building.

Phases I and II ESAs, Southern California—Managed Phase I ESAs, in accordance with ASTM E1527-13 guidance, for Beverly Hills, Burbank, Glendale, Hollywood, Pasadena, Torrance, and Los Angeles International Airport properties in southern California. The ESAs were conducted for an acquisition by a national car rental company. Managed the Phase II ESA and oversight of soil remediation at the airport facility.

Phases I and II ESAs, Minnesota and Texas—Conducted Phase I ESAs at car rental facilities in Richfield, Minnesota, and Austin and Dallas, Texas, in accordance with ASTM E1527-13 guidance. Managed a Phase II ESA for the Richfield facility, including a geophysical survey to locate USTs and soil and reconnaissance groundwater sampling.

Groundwater Modeling

Numerical Modeling Support for a Chemical Distribution Facility, Santa Ana, California (confidential ongoing litigation)—Provided senior review and conducted numerical modeling simulations using SESOIL and AT123D codes to evaluate site-specific groundwater screening levels. The modeling was conducted to evaluate soil and groundwater remedial options for the site remedial action plan and corrective measures study.

Numerical Modeling Support, Brunswick, Georgia—Provided numerical modeling support for the remediation of an active wood rosin and turpentine manufacturing facility with chlorinated solvent and other VOC plumes in multiple groundwater zones. The EPA model BIOCHLOR was used to assess the fate and transport of benzene (including chlorobenzene degrading to benzene) downgradient of the site. The modeling results indicated benzene would degrade to a concentration below the surface water criterion beneath a salt marsh approximately 1,400 ft east of the site.

Stochastic Groundwater Modeling, Grand Forks, North Dakota—Conducted groundwater modeling at the University of North Dakota as a part of a research assistantship for a master's thesis. Performed a Monte Carlo analysis to evaluate the effects of weakly non-linear adsorption on plume spreading. Developed the groundwater models to simulate natural gradient tracer tests in weakly and strongly heterogeneous flow systems using the FORTRAN-based SUTRA code. Wrote a number of FORTRAN programs to calculate various parameters and edit large files associated with this work. Performed null hypothesis testing on ensemble means to evaluate the effects of sorption on plume spreading. The results of the modeling did not show a statistically significant difference in plume spreading between the weakly non-linear and conservative tracer cases.

Health and Safety

Corporate Health and Safety Program, Integral Consulting Inc.—Served as the corporate health and safety program manager for more than a decade, with responsibility for 20 offices nationwide. Developed a medical surveillance program to protect the health and safety of employees



conducting fieldwork at sites with various combinations of hazardous chemicals. Finalized and updated Integral's corporate health and safety plan and developed a site-specific health and safety plan template. Registered Integral with the ISNetwork, PICS, and BROWZ contractor verification programs for a number of clients. Provided guidance to employees related to health and safety procedures and policies and leadership to the corporate health and safety committee.

Publications

Korom, S.F., and E.J. Dodak. 2009. Numerical study of bromide as a tracer for aquifer macrodispersivity tests: Comparing conservative behavior to mildly nonlinear adsorption. *Journal of Hydrologic Engineering*. 14(12):1383–1389.

Dodak, E.J. 1996. The effects on non-linear bromide adsorption on apparent macrodispersivity. Masters thesis. Department of Geology and Geological Engineering, University of North Dakota. 241 pp.

Presentations/Posters

Dodak, E., and D. Livermore. 2017. The importance of conducting groundwater tidal influence studies at sites near tidally affected surface water bodies. Poster presentation at the 11th Annual Washington Hydrogeology Symposium, Tacoma, WA.

Livermore, D., and E. Dodak. 2015. Tidally influenced groundwater: Implications for contaminant fate and transport and sediment site remediation—Lower Willamette River examples. Eighth International Conference on Remediation of Contaminated Sediments, New Orleans, LA.

Wexler, R., G. Revelas, E. Dodak, E. Bakkom, B. Robinson. 2012. Sediment investigation and cleanup: How do all the pieces fit together? Presented at the Pacific Northwest International Section of the Air and Waste Management Association annual conference, Portland, OR.

Strandhagen, E., E. Dodak, and D. Livermore. 2008. Modeling and analyzing mass and volume of DDX contamination in sediment for environmental remediation. Presented at the American Society of Photogrammetry and Remote Sensing annual conference, Portland, OR.

McWilliams L., D. Livermore, D. Lamadrid, T. Sparacio, and E. Dodak. 2002. Using a chemical tracer to map groundwater flow in vadose zone soils. Presentation at the National Ground Water Association 2002 Ground Water Expo, Las Vegas, NV.

Dodak, E.J., and S.F. Korom. 1996. Numerical evaluation of bromide as a tracer for macrodispersivity experiments in anion-sorbing sediments. Poster presentation at the American Geophysical Union spring meeting, #H12A-7, Baltimore, MD.

