Appendix A

Project Team Qualifications

Experience

Allan Gebhard has more than 40 years of experience as an engineering consultant at Barr, including serving as president from 1985 to 2000. In his career, he has directed a wide range of projects, with emphasis in the field of environmental engineering. Al has directed or otherwise participated in several hundred groundwater-contamination projects throughout the United States. He has managed remedial investigations that assessed human health and environmental impacts of wood preserving, oil refining, coke production, chemical manufacturing, industrial manufacturing, and mining facilities and has conducted feasibility studies that evaluated the effectiveness, cost, ability to implement, and secondary impacts of remedial actions. Al has also participated in remedial action projects at uncontrolled waste disposal sites, participated in property assessments and site cleanups pursuant to the buying and selling of real estate, and played a key role in designing environmental monitoring programs for a number of large industrial facilities.

Al has worked extensively with:

- Regulatory agency negotiations to define the extent of appropriate site remediation.
- CERCLA and RCRA regulations.
- Complex technical projects involving multi-jurisdictional regulatory agency involvement.
- Multi-disciplined teams of specialists evaluating technical solutions to complex waste management and site remediation problems.
- Steering committees and policymaking groups.
- Advising clients on technical issues at more than 100 cleanup sites in Illinois, Iowa, Florida, Georgia, Michigan, Minnesota, Montana, New York, Ohio, Oregon, South Dakota, Utah, Vermont, Washington, and Wisconsin.

His specific project experience has included:

- Directing a project for the State of Minnesota in the late 1970s that surveyed hazardous waste generation in the Minneapolis-St. Paul metropolitan area and recommended a “cradle to grave” management system for hazardous wastes. The work predated RCRA and became the basis for Minnesota’s early hazardous waste management legislation.
- Directing the remedial investigation of an abandoned coal tar distillation and wood-treating facility in St. Louis Park, Minnesota, that had contaminated several aquifers, including the one supplying drinking water to that part of the Twin Cities. The investigation was one of the first in the country to use groundwater modeling to track the movement of contaminants and to predict the future impact of the contamination on groundwater quality. This facility

was one of the sites used by the U.S. EPA to demonstrate the need for CERCLA.

- Directing ongoing remedial actions at Joslyn Manufacturing's former wood-treating facility, a Superfund site in Brooklyn Center, Minnesota. Remediation of the site included on-site biological treatment of contaminated soils, DNAPL recovery, and groundwater containment.

- Directing removal actions in compliance with multiple CERCLA orders issued for a closed wood-treating site. The work included a time-critical removal site evaluation and a time-critical removal action by order of the EPA. The removal site evaluation was completed within the stipulated timeframe. The removal action work plan properly characterized the waste stream (with EPA concurrence) as a RCRA Subtitle D waste. This characterization resulted in a $2 million savings. Concurrent with the time-critical removal action, a human health and ecological risk assessment work plan was developed by Barr and a partner consultant. This project also involves management and monitoring of remediation systems including product recovery, groundwater treatment with granular activated carbon, and post-closure activities for a RCRA-type containment vault.

- Directing the remedial investigation, feasibility study, and remedial action design for three industrial-waste-disposal sites in Oakdale, Minnesota. The Oakdale sites are included on the United States Environmental Protection Agency's National Priority List. Site remediation was overseen by a consent order with the state of Minnesota and U.S.EPA Region V. The entire cleanup project, from first notification to the final remedial construction, was completed in five years. Since completion of the cleanup, Barr continues to prepare annual monitoring reports that summarize pump-out system operation and changes in pump-out-well and monitoring-well water quality. Barr also designed an air treatment system for the groundwater remediation system at the site. Odors from the site's groundwater-discharge ventilation system were sometimes noticeable beyond the site boundary.

- Directing remediation and regulatory assistance for the Arrowhead Refinery Site near Duluth, Minnesota, a site on the U.S. EPA's National Priority List. Barr assisted in responding to U.S. EPA's administrative orders to implement the remedies in the record of decision (ROD) for the site. Source materials included high-lead-content sludge, filter cake, and oil-saturated peat. The EPA had selected on-site incineration as the appropriate remedial action in the ROD, but Barr conducted treatability studies and successfully assisted the potentially responsible party (PRP) group in negotiating an amendment to the ROD that provided for implementation of a re-refining technology and subsequent disposal of process residues at an off-site Subtitle D landfill. Barr designed the more cost-effective remedial action and worked with a contractor to get cost estimates for completing the work. We also provided construction observation services during implementation of the project. Barr

also managed development of the design and plans and specifications for the construction of a water-main extension connecting neighbors of the site to a municipal water supply, and the installation and operation of a groundwater extraction system. In addition, we were responsible for construction observation of both these tasks, which were carried out by a subcontractor.

- Directing technical assistance to a responsible party in a large RCRA corrective action at a chemical plant in Florida. The corrective actions are being implemented by the present owner of the plant. Our client was a former owner of the facility. Barr became involved at this site when the draft RCRA facility-investigation/contamination-assessment report and baseline-risk-assessment report were being completed. We reviewed the available information and provided input about the identification, evaluation, and selection of the appropriate corrective measures and the implementation strategy. This input was incorporated into the feasibility study/corrective measures study (FS/CMS). Barr also assisted with complex PRP-cost-allocation issues on our client's behalf. Our technical approach to the cost-allocation negotiations led to what Barr's client believes was a fair and reasonable assignment of responsibility for future corrective measures costs.

- Directing the remedial investigation and remedial action design at the 180-acre National Pole and Treating Company site in Fridley, Minnesota, a site on the U.S. EPA's National Priority List. The remedial investigation involved collecting and analyzing soil samples; placing monitoring wells; and collecting and analyzing groundwater, surface water, and sediment samples. Barr also prepared plans and specifications for the selected remedial actions, and observed implementation of the remedial actions. Approximately 12,000 cubic yards of soil contaminated with polyaromatic hydrocarbons were excavated. Less-contaminated soil and contaminated groundwater were contained by a 35-foot-deep, 2,000-foot long slurry wall, a synthetic membrane cap, and interior and exterior groundwater collection systems. When the site was further redeveloped, Barr worked with the developer to ensure that site development did not adversely affect the effectiveness of the remedial actions.

- Directing the remedial investigation at a site once used to burn solvent waste from a specialty paper-production mill in northern New York. A preliminary assessment had been completed at the site by a consultant to the New York Department of Environmental Conservation. Barr placed a number of soil borings and test trenches across the site and analyzed representative soil samples for a wide range of volatile organics and metals. We concluded that soils above shallow bedrock were contaminated with lead. Barr a completed a focused feasibility study that study concluded that stabilization and disposal at a RCRA Subtitle D facility was the most cost-effective remedy for the contaminated soils.

- Directing an environmental investigation at a site with former wastewater lagoons on a low island in the Willamette River across from a paper mill in Oregon. The Oregon Department of Environmental Quality (DEQ) had proposed listing the site on their confirmed release list (CRL) based on groundwater quality data from the mid-1980s that they found in their files. Barr located five existing monitoring wells that had been installed 15 to 25 years prior and were now concealed and protected by tall, thorned blackberry brambles by coordinating with a local landscaping firm to clear the brush. This approach saved time and money that would have been needed to install new monitoring wells. Barr reviewed the resulting data and relevant results from prior investigations and evaluated them relative to current DEQ risk-based standards. These evaluations led to our report's conclusion that the site did not warrant listing on the CRL and that that no further investigation or actions were needed at the site. The DEQ agreed with our conclusions and stated that it would issue a no-further-action letter just 6 months after the site was proposed for listing on the CRL.

- Directing assistance to Technical Ordnance with the closure of several sites in Minneapolis that had been used for the disposal of munitions waste. The waste materials disposed at the sites consisted of explosive powder residues with small amounts of fuel oil and solvents. Contaminants of concern included petroleum products, volatile organics, and metals. Investigation activities included the placement of soil borings and monitoring wells and the collection of soil and groundwater samples. The work was done in conformance with RCRA since the facility was permitted under RCRA. Corrective measures studies were conducted at two of the sites and included excavation of contaminated soil, removal of contaminated groundwater, and clean closure of the sites.

- Directing an investigation and cleanup for General Dynamics Information Systems in Bloomington, Minnesota. An electrical-transformer explosion resulted in PCB-containing oil contaminating surrounding soil and the inside and outside of a concrete electrical vault. Barr prepared a cleanup plan to comply with the U.S. EPA's self-implementing disposal option for PCB remediation waste and to meet the Minnesota Pollution Control Agency's requirements for contaminated soil remediation. Barr completed an investigation to assess the extent of contamination and oversaw cleanup activities, including excavation of contaminated soil and decontamination of the concrete vault according to U.S. EPA protocol.

- Directing a remedial investigation and feasibility study (RI/FS) at the Warden Oil site, a former waste-oil refinery in Minneapolis, Minnesota. Barr prepared a quality assurance project plan (QAPP), conducted a remedial investigation to determine the nature and extent of soil and groundwater contamination, and performed a feasibility study for potential remedial options at the site.

- Directing groundwater remedial actions at the Superior Plating site, a metal-plating facility in northeast Minneapolis with an apparent trichloroethylene release that had seeped into a fractured bedrock aquifer and was flowing along fractures toward the Mississippi River. Barr conducted a remedial investigation, including placement of several monitoring wells to map contaminant fate and transport in a complex fractured-bedrock setting. We then performed a feasibility study that considered a range of passive and active groundwater remedial actions. The selected remedial action consisted of a groundwater extraction system for plume migration control and an ultraviolet/peroxide treatment system with subsequent discharge to the sanitary sewer. The treatment system was the first application of this technology to treat contaminated groundwater in Minnesota. Results indicate that greater than 99 percent removal of trichloroethylene is being achieved.

- Directing the investigation and remediation of the Colonial Square Shopping Center in Wayzata, Minnesota. Contaminated soil and groundwater was discovered under the property from a former dry-cleaning tenant. Barr worked with the Minnesota Pollution Control Agency's Voluntary Investigation and Cleanup (VIC) program to conduct a soil and groundwater investigation, prepare a response action plan, and install a soil-vapor extraction system to remove residual contaminants. Barr also took the lead in preparing a reimbursement application from Minnesota Dry Cleaner Fund.

- Directing the investigation and remediation of a former General Mills research facility in Minneapolis, at which waste solvents were disposed. Barr investigated groundwater impacts, evaluated several remedial actions, conducted an air-stripping pilot test, and prepared plans and specifications for shallow and deep groundwater pump-out systems. Barr also provided long-term maintenance and monitoring to determine effectiveness of the systems.

- Directing the redevelopment assistance to the St. Paul Port Authority for the Maxson Steel Foundry property in St. Paul, Minnesota. The property had been used for over 100 years by heavy industry. Barr compiled the information from several previous investigations, conducted a Phase II investigation for areas requiring additional investigation, coordinated work with the MPCA's VIC program, prepared response-action cost estimates, helped prepared grant applications for the cleanup work, designed the response actions, provided construction observation, and assisted with a media-day and neighborhood meetings related to the redevelopment. The property is now called the Great Northern Business Center.

- Directing investigation and remedial design and implementation efforts at Marathon Petroleum Company's St. Paul Park refinery. Barr's work has included conducting site-wide and release-specific investigations using innovative field analytical and geophysical techniques; collecting sediment and subsurface samples from the Mississippi River and Marathon's wastewater treatment lagoons; designing and overseeing construction of

groundwater and petroleum product extraction drains and wells; designing and installing bio-venting and bio-pile systems to handle contaminated soil; and designing ventilation systems and lining sewers to prevent entry and buildup of explosive vapors.

- Advising a potentially responsible parties group on the design and implementation of a $60 million RCRA corrective action in EPA Region IV. As part of this project, he led a Barr team that conducted a "value engineering" effort to improve the cost-effectiveness of the remedial action design for one of the operable units. Barr's work identified approximately $2 million in potential cost savings.
- Advising a municipal client whose water-supply wells had been affected by chlorinated-solvent releases from a large military facility. The agreement with the military led to the use of the city's wells to control migration of the contaminants. Barr designed granular-activated-carbon treatment plants for the city's water supply. One of the plants was the second largest GAC plant for municipal supply in the United States.
- Assisting the City of Arden Hills with redevelopment of the 585-acre Twin Cities Army Ammunition Plant (TCAAP) transfer facility. Directed the reviews of environmental reports prepared by developer's consultant.

Expert Witness Experience

Boise Cascade Corporation
National Pole and Treating Company Site, Fridley, Minnesota
Al served as an expert witness for Boise Cascade Corporation in a matter involving the selection of the appropriate remedial action and the allocation of response action costs for the cleanup of a large wood treating site in the Minneapolis/St. Paul area. Al was involved with defining the technical strategies of the case and depositions. He testified for approximately three days on Barr's work on the project. Barr was responsible for conducting the RI/FS studies and designing the remedial actions at this NPL site.

Tonka Corporation
Woyke Farm Site, Wright County, Minnesota
Al was an expert witness for Tonka Corporation in a matter involving the allocation of responsibilities for the improper disposal of solvents from a manufacturing facility in the Minneapolis-St. Paul area. Al testified at a civil trial regarding the procedures used to clean up the site. Barr was responsible for conducting the studies and designing the remedial actions at the site.

Tonka Corporation
Main Plant Site, Hennepin County, Minnesota
Al was deposed in an insurance-recovery matter regarding Barr's studies of a manufacturing site. Barr was responsible for conducting the RI/FS investigations at this site.

Data Card, Inc.
Former Manufacturing Facility, Holmesville, Ohio
Al was an expert witness in a matter involving the allocation of response costs associated with the cleanup of a naphtha and tetrachloroethylene release from storage tanks at a large manufacturing plant in Ohio. Al provided depositions about his review of the available information, testified at trial regarding the contamination at the site, and participated with a group involved with the investigation and cleanup of the site.

Joslyn Corporation
Former Wood-Treating Site, Brooklyn Center, Minnesota
Al served as a fact and expert witness on an insurance matter involving the recovery of cleanup costs for a large wood-treating site in the Minneapolis-St. Paul area. Barr was responsible for conducting the studies and designing the remedial actions at this NPL site.

Anoka County/Metropolitan Council
Oak Grove Sanitary Landfill, Anoka County, Minnesota
Al was an expert witness in a condemnation proceeding regarding alleged damages brought about by a development moratorium in the area surrounding a landfill site proposed by a regional landfill siting effort. The proposed landfill site was adjacent to an existing landfill that had closed. Groundwater contamination had been identified at the closed landfill and a central issue in the condemnation proceeding was estimating the cost and timing of likely response actions at the closed landfill and the cost and timing of expanding the closed landfill without the development limitation. Al testified at the condemnation hearing and was an expert witness during the appeal of the Condemnation Commissioner's award.

Hedberg Estate
Old Minnetonka Landfill, Minnetonka, Minnesota
Al was deposed in an insurance recovery matter involving recovery of response action costs at an old open-pit burning dump. The property containing the dump was being developed with single-family homes. Barr Engineering was responsible for studying and negotiating the cleanup plan for the site.

Confidential Client
Solvent Release, Bozeman, Montana
Al was an expert witness in a legal action brought by potentially responsible parties regarding the allocation of response costs associated with a solvent release and contamination of public and private water supplies.

Confidential Client
Former Wood-Treating Site, Whitewood, South Dakota
Al acted as an expert witness in a matter involving the allocation of response costs associated with the cleanup of a wood treating site in South Dakota. The action was brought by the present owner of the facility against other parties that were allegedly responsible for release of hazardous substances at the site.

Boise Cascade Corporation
Various Projects
Al was deposed in a matter involving recovery of response costs at various contaminant release sites involving Boise Cascade Corporation. Barr has been responsible for studying and designing cleanup plans for many of the sites.

Midwest Pipe Coatings
Former Plant Site, Eastern Iowa
Al served as an expert witness on the appropriate extent of cleanup at a former pipe-coating facility in eastern Iowa. He provided testimony on the extent of contamination at the site, the fate and transport of the contamination, and the extent of remedy necessary at the site.

Clearr Corporation
Former Manufacturing Site, Minneapolis, Minnesota
Al served as an expert witness regarding the probable source of solvent contamination identified on a site adjacent to the client's manufacturing facility. In an arbitration hearing, he testified on the technical issues involved in migration of the contamination.

Superior Services, Inc.
Forest Road Landfill
Al served as an expert witness in a lawsuit involving the expansion of a major landfill in the Minneapolis-St. Paul area. At issue are the risks to public health and the environment from the expanded landfill

3M
Woodland Sites—New Jersey
Al's work on this project centered around helping our client obtain an equitable allocation of cleanup costs for two Superfund sites. Cleanup costs for the sites' selected remedial action were on the order of $150 to $200 million. After the United States Environmental Protection Agency and the state regulatory agency conducted remedial investigations and feasibility studies and selected remedial actions, Barr's client joined with two other potentially responsible parties to form a group that would take over responsibility for cleaning up the sites. The three parties spent about $50 million removing tars and contaminated soils from the sites and conducting studies to try to revise the groundwater record of decision. The agreement between the PRPs stipulated that the three parties enter binding arbitration to reach a decision on the allocation of costs among them.

Barr compiled ten years' worth of process data to characterize the chemical composition of wastes that could have been taken to the sites by the PRPs. Our client's waste was clearly distinguishable from the tars and chlorinated solvent wastes that made up the majority of the contamination at the sites. Barr staff members used the waste characterization information, along with information from studies of the sites, to support a demonstration that our client should be responsible for only a small portion of the cleanup costs. Work tasks involved the use of probabilistic cost estimates to differentiate the costs specific to chlorinated and non-chlorinated waste cleanup; the examination of thousands of documents

regarding the chemical processes and waste production at the various PRP facilities; deposition testimony; testimony at a month-long arbitration hearing; and technical assistance with deposition and cross-examination testimony.

Al gave several days of deposition and one day of trial testimony supporting our client's assertion that responsibility for cleanup costs could be assigned based on contaminant-specific wastes and relative shares of hazardous materials taken to the sites. He demonstrated that each party's wastes could be analyzed individually; that uncertainty regarding future actions could be addressed by using a probabilistic approach; that, in the absence of our client's wastes, the soil and groundwater cleanup would have been virtually identical to the cleanup that actually occurred; and that if only our client's wastes had gone to the sites, the amount of soil requiring cleanup would have been small and the groundwater contamination would have been limited to the site itself, rather than extending several thousand feet off site at both locations, and would have required less complicated (and expensive) treatment trains.

Education

M.S., Civil Engineering, University of Minnesota, 1967

B.S., Civil Engineering, University of Minnesota, 1965

Registration

Civil Engineer: MN, IL, MI

Memberships

American Society of Civil Engineers

Minnesota Society of Professional Engineers

Water Environment Federation

American Water Resources Association

Presentations/ Publications

"Cleanup Standards and Costs." Minnesota State Bar Association Superfund Forum. February 1994.

"Technologies for Groundwater State of the Art Remediation." Land Recycling: Minnesota Voluntary Investigation and Cleanup Program, Minnesota Environmental Initiative, Minnesota Pollution Control Agency, Minnesota Ground Water Association. St. Paul, MN, January, 1994.

"Implementation of Cleanup Remedies." CLG International Hazardous Waste Cleanup Seminar. October 22, 1993, and October 2, 1992.

"Using Contaminated Groundwater for Potable Supply." Presented at "Water 90" Conference, St. Paul, MN. April 1990 (with Mark Deady, P.E., and Greg Keil, P.E.).

"Control of Environmental Cleanup Costs." Minnesota Institute of Legal Education Environmental Law Institute. April 1990.

"Environmental Liability in Commercial Real Estate Lending." Minnesota Bankers Association, 1989 Real Estate Seminar. March 1989.

"How Clean Is Clean in Minnesota: A Private Perspective." Environmental Law Institute. October 1986.

"Groundwater Cleanup Standards." Environmental Law Institute. March 1985.

"Remedial Actions to Alleviate Groundwater Pollution from a Former Industrial Waste Disposal Site." Water Pollution Control Federation Annual Conference. October 1984.

"Hydrogeologic Assessments." Third Annual Midwest Conference on Environmental Laboratory Technology. December 1981.

"Hazardous Waste Management Facilities: Ownership, Financing, Siting and Liability." Water Pollution Control Federation Annual Conference. October 1979.

"Monitoring the Water Resource Impacts of Mining Activities." American Institute of Mining Engineers Symposium. February 1976.

"Recycling/Reclaiming Dumps—Old Beltline Dump Case Study," Minnesota Solid Waste Seminar, St. Paul, MN, February 1996.

"Technical Aspects of Site Cleanup." Land Recycling: The Redevelopment and Management of Previously Used Property, Minnesota Environmental Initiative, St. Cloud, Rochester, and Duluth, MN, September 1994.

Technical Reports Authored

While serving as project manager and principal of many Barr's projects, he authored or coauthored the following technical reports:

Phase I/Phase II Investigation Report, Slip 7 at Georgia-Pacific Corporation's Duluth, MN Facility. Prepared for the Georgia-Pacific Corporation, Duluth, MN.

Groundwater and Soils Investigation Report. Prepared for the Central Co-Operative Oil Association, Medford, MN.

Closure Investigation Report for the Noerenberg Burn Site. Prepared for Technical Ordnance, Incorporated, Carver County, MN.

Closure Investigation Report for the Polingo Burn Site. Prepared for Technical Ordnance, Incorporated, Wright County, MN.

Groundwater Investigation Report for Dan's Diner Eveleth, MN. Prepared for Hanft, Fride, O'Brien, Harries, Swelbar and Burns, P.A., Eveleth, MN.

Impact Investigation Report, Dairy Whey Disposal, Topp Farm, Dakota County, MN. Prepared for Marigold Foods, Inc., Farmington, MN.

Evaluation Report and Remedial Investigation Work Plan, Dairy Whey Disposal Site Topp Farm Dakota County, MN. Prepared for Hart, Bruner & O'Brien, Farmington, MN.

Groundwater Investigation. Prepared for the Central Co-Operative Oil Association, Medford, MN.

Soil and Groundwater Investigation, Final Report, Whitewood Wood Treating Facility. Prepared for Champion International, Whitewood, SD.

Evaluation Report for the Burnsville Landfill. Prepared for Edward Kraemer and Sons, Inc., Burnsville, MN.

Remedial Investigation/Feasibility Study. Prepared for Superior Plating, Inc., Minneapolis, MN.

Remedial Investigation/Alternatives Report, Brooklyn Center Wood Treating Site. Prepared for Joslyn Corporation, Brooklyn Center, MN.

Supplemental Alternatives Report, Brooklyn Center Wood Treating Site. Prepared for Joslyn Corporation, Brooklyn Center, MN.

Remedial Investigation Report for the USS Duluth Works Site. Prepared for USS, a Division of USX Corporation, Duluth, MN.

Initial Investigation, Final Report, Tonka Corporation Main Plant Site. Prepared for Tonka Corporation, Mound, MN.

Phase I and Phase II Summary Report: Ironwood Landfill Groundwater Investigation/Remedial Action Recommendations. Prepared for Advance Transformer Co., Spring Valley, MN.

Site Characterization Study and Remedial Action Plan, General Mills Solvent Disposal Site. Prepared for General Mills, Inc., Minneapolis, MN.

Feasibility Study of Remedial Actions, General Mills Solvent Disposal Site. Prepared for General Mills, Inc., Minneapolis, MN.

The Influence of Geologic Features on Land Disposal Facility Design. Prepared for the Minnesota Waste Management Board, Minneapolis, MN.

Conceptual Design & Preliminary Operating Plan: Accelerated Decomposition Landfill for Anoka County. Prepared for Anoka County Environmental Health Division, Anoka County, MN.

Soil and Groundwater Investigation, National Pole and Treating Company Site/Onan Property. Prepared for Boise Cascade Corporation, Fridley, MN.

Impact of Seepage from Freeway Sanitary Landfill on the Minnesota River. Prepared for Freeway Sanitary Landfill, Burnsville, MN.

Report on Hydrogeologic Investigation of the Freeway Landfill Site, Burnsville, MN. Prepared for Richard B. McGowan, Owner, and A.C. Godward, Consulting Engineer, Burnsville, MN.

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Experience

Jim Aiken is a hydrogeologist with 20 years of experience in both field investigation and project management. Jim's experience covers a unique breadth and depth of knowledge, including environmental investigation and remediation, brownfields redevelopment, solid-waste investigation and permitting, environmental review, water supply and engineering support for the power industry, as well as facility compliance, environmental management, and expert testimony and legal support.

His project work includes:

Environmental Investigation and Remediation

- Conducting Phase I/Phase II investigation and response action for a storage garage in Jeffers, Minnesota, that had utilized prohibited Class V injection wells for disposal of solvents and oil for more than 40 years.
- Planning and implementing a supplemental Phase I and limited Phase II investigation at the former Gopher Ordinance Works, a World War II-era munitions plant storage and non-production area near Rosemount, Minnesota. Project included a CERCLA remedial investigation/site investigation for areas identified by the U.S. Army Corps of Engineers Formerly Used Defense Sites (FUDS).
- Serving as principal scientist for environmental investigation and remediation projects for another firm. Projects included:
  - Managing and performing Phase I environmental site assessments for eight compost-yard-waste facilities, as well as assistance with purchase agreement documents and exhibits.
  - Assisting in negotiations and modifications to a voluntary response action plan (RAP) for a former dump-turned ball field that saved the client more than $1.5 million relative to the initial RAP prepared by a previous consultant.
  - Performing a Phase I assessment and Phase II investigation for a proposed transmission tower site. Obtained "no association" letter for the client.
  - Managing the Phase I assessment and Phase II investigation of a former methamphetamine-lab property.
  - Conducting a pre-purchase assessment for a former missile site located in Dakota County, Minnesota.
  - Directing emergency response, brownfield investigation and coordinating forensic contamination study and expert testimony for criminal prosecution at a brownfield site in Jordan, Minnesota.
  - Managing brownfield investigation, remediation, and redevelopment of a former gun range and gravel mine in Chanhassen, Minnesota.
  - Conducting a Phase I environmental site assessment and natural resource evaluation for a 260-acre property in Kandiyohi County, Minnesota, that

including a 15-acre unpermitted landfill, gravel quarries, and a former railyard.

  - Performing a Phase I property assessment and a Phase II site investigation for a former landfill site in Hackenack, Minnesota.

- Serving as project manager for a subsurface investigation related to an EPA brownfields demonstration pilot in Des Moines, Iowa.
- Serving as project manager for remedial investigation of six former manufactured gas plant (MGP) sites in Iowa.
- Managing the groundwater and geologic investigations for seven former MGP sites in Iowa.
- Conducting high-resolution field mapping of a coarse fluvial aquifer using ground-penetrating radar (GPR) to identify preferential pathways for contaminant migration.
- Constructing a full three-dimensional, finite-difference flow model (MODFLOW) of an outwash aquifer near Stoughton, Wisconsin. The model was linked with a particle-tracking code (PATH3D) to identify sedimentary facies that are associated with preferential contaminant movement.
- Analyzing recovery data for volatile organic compounds and conducting field investigations to optimize pumping-well efficiency at a Superfund site in Minnesota.
- Performing a subsurface investigation to isolate areas of widespread and non-uniform PCB contamination at a former scrap-metal-recycling facility.
- Installing monitoring wells and performed aquifer testing of a low-permeability aquifer at an Oregon site with petroleum distillates in soils and groundwater.
- Investigating and managing response actions at more than 30 petroleum tank and spill sites in Minnesota and Wisconsin. Examples of his work include:
  - Closing out the site of a free-product release in Cambridge, Minnesota.
  - Serving as site manager for remedial investigation of extensive diesel contamination at a fuel-oil transfer station in Madison, Wisconsin.
  - Coordinating claims reimbursement under the Petroleum Environmental Cleanup Fund Act (PECFA) for a retail gasoline stores in Eau Claire, River Falls, Somerset, Ladysmith, Waupaca, and Superior, Wisconsin.
  - Completing expedited site investigations and implementing remedial actions at ten gas- and diesel-contaminated sites in Minnesota as part of a regional merger of two petroleum companies.
  - Directing removal and arranging for incineration of approximately 1,200 cubic yards of diesel-contaminated soil from a former fuel-oil storage facility.

  - Assessing distribution of gasoline and diesel in soils observed in trenches and borings at a bulk-storage facility and an active refinery.
  - Designing and testing a pilot soil-vapor-extraction system for a petroleum-contaminated site in Oregon.

- Managing field investigation of creosote-contaminated demolition fill in Golden Valley, Minnesota.
- Conducting ground penetrating radar survey that identified a source area for chlorinated solvent contamination at a site in Mound, Minnesota.
- Participating in a quick response investigation and removal of buried drums discovered during the development of a property in Golden Valley, Minnesota.
- Conducting Phase I and Phase II environmental assessments for property transfers in Minnesota and Wisconsin.

Surface Water/Groundwater Hydrology

- Serving as project manager for comprehensive groundwater field investigation to evaluate the impacts of gravel mining on the Vermillion River Watershed in Dakota County, Minnesota.
- Serving as project manager for development of a regional groundwater/surface water model that is being used as part of an EIS being prepared by the University of Minnesota to assess changes in mining end use plans and related potential for significant effects on surface water, wetlands, and Vermillion River.
- Evaluating pond sediments for nutrients, metals, and potential reuse of dredge spoils for a lake in the Minnesota River floodplain.
- Serving as project Manager for groundwater/surface water modeling effort to evaluate potential impact of pumping on Sand Creek and the Louisville Swamp as part of EAW for a proposed silica-sand mine in Jordan, Minnesota.

Solid-Waste Investigation and Permitting

- Serving as principal scientist for solid-waste investigation and permitting projects for a firm in Minneapolis. Projects included:
  - Conducting Phase I, II, and III hydrogeologic investigations and Phase IV work plans for two municipal solid waste (MSW) landfill expansion projects located near Minneapolis, Minnesota.
  - Preparing annual groundwater monitoring reports, database management, and statistical evaluation for three facilities in North Dakota and South Dakota—a total of twelve separate waste-management units.
  - Revising a landfill leachate management plan and providing annual report preparation for a combustor-ash landfill in Sherburne County, Minnesota.
  - Conducting monitoring and evaluation of a 40-acre industrial landfill in Missouri.

  - Preparing an investigation work plan and technical specifications for the continued development of an existing solid-waste facility in Minnesota.
  - Performing field and project management of a streamlined hydrogeological investigation for a landfill expansion that accelerated the completion timeline for the study by more than six months.
  - Providing expert testimony on environmental due diligence and remote-sensing data interpretation for determining past waste disposal activities adjacent to a permitted solid-waste facility.
  - Assessing the suitability of clay-borrow materials for use in landfill-liner construction.
  - Conducting a solid-waste-permitting investigation for the continued development of an existing facility in Minnesota.
  - Calculating synthetic liner and landfill-berm seepage estimates for technical performance evaluation and regulatory review.
  - Conducting a comprehensive multi-site groundwater/surface-water monitoring program for eight coal-ash management units at five separate facilities in Iowa.

- Implementing an integrated geophysical and subsurface boring program to identify areas of leachate accumulation for a landfill in Missouri.
- Successfully obtaining closure of a RCRA facility in Nevada, Missouri.
- Developing a RCRA monitoring assessment program at a former incinerator in Missouri.
- Performing RCRA facility investigation and closure activities at a petroleum-contaminated site in Oregon.
- Coordinating closure/post-closure groundwater monitoring program for two ash landfills in Michigan.
- Performing a hydrogeologic investigation and geophysical mapping for two fly-ash landfill expansions in Michigan.
- Investigating process water quality and groundwater issues near an ash pond in Muscatine, Iowa.
- Developing baseline and postclosure monitoring plans for two industrial-waste landfills in Minnesota.
- Conducting groundwater and geophysical survey to determine limits of sludge ash landfill in Eagan, Minnesota.
- Performing geotechnical testing, construction observation, and documentation of all aspects of landfill construction for six landfills in Wisconsin.

- Modeling transient changes in hydraulic head at a tailings pond near Hibbing, Minnesota, using MODFLOW. The purpose of the simulation was to predict settlement of fine-grained tailing particles to increase pond capacity.
- Testing and installing monitoring devices during landfill liner construction at two sanitary landfills in Wisconsin.
- Managing site characterization and groundwater monitoring plan for a landfill in Cottage Grove, Minnesota.
- Performing hydrogeologic evaluation and managing a field investigation of a landfill and former sewage lagoons in Rochester, Minnesota.

Environmental Review

- Serving as principal scientist for environmental review projects with a firm in Minnesota. Work included:
  - Conducting comprehensive groundwater evaluation and managing environmental impact statement (EIS) study and siting evaluation for a proposed solid-waste facility in Washington County, Minnesota.
  - Providing detailed research and authoring portions of environmental assessment worksheet (EAW) and EIS documents as a regulatory contractor. Also wrote technical resource documents for private clients and a landfill advisory committee.
  - Preparing EAW and scoping EIS documents for a landfill expansion in Burnsville, Minnesota.
  - Providing a preliminary groundwater/surface-exposure assessment for a proposed commercial hunting preserve in central Minnesota.

Land-Use Planning

- Completing an aggregate-resource investigation to estimate mine-worthy quantities of sand and gravel for a site near Jordan, Minnesota.
- Performing an aggregate-resource investigation and mine-development plan for a property in Sibley County, Minnesota.

Environmental Management

- Serving as principal scientist for environmental management projects with a firm in Minnesota. Work included:
  - Conducting a field audit and developing portions of a revised RCRA facility assessment for a manufacturing plant in Missouri.
  - Conducting spill-prevention-plan compliance review, development, revisions, and integrated recommendations into an ISO 14000-compatible format.
  - Developing spill-prevention-control and countermeasure (SPCC) plans for three waste-to-energy facilities in Minnesota.

– Assisting in negotiations and review of zoning requirements for a proposed electrical substation on property owned by the city of Hackensack, Minnesota.

Water-Supply Studies

- Developing water-supply alternatives for a proposed 500-MW combined-cycle power plant in southwestern Iowa.
- Performing a water-supply and geochemical evaluation for a 750-MW plant and coal-ash-disposal facility near Muscatine, Iowa, that included well installation, groundwater modeling, and a comprehensive well identification, mapping, and well-abandonment program.
- Completing preliminary site selection and water-supply evaluation for a combined-cycle power plant near Appleton, Wisconsin.

Education

M.S., Geology (Emphasis: Glacial Geology and Hydrogeology), University of Wisconsin at Madison, 1993

B.S., Geology, University of Wisconsin at Madison, 1986

Registration

Registered Professional Geologist: MN, WI, MO, IL

Certification

PECFA—Registered Consultant: WI

Memberships

Carver County Water Environment and Natural Resources Committee

MPCA Stormwater Steering Committee—Industrial Stormwater Working Group

ASTM International Standards Subcommittee on Soil and Rock

Minnesota Groundwater Association

Presentations/ Publications

"The Lexington Manor debacle—a costly transition from former gun range to residential subdivision." Presented at the 2005 MPCA Air, Water, and Waste Conference, 2005.

"Assessment of Leachate quality—implications for solid waste management planning" by T.R. Johnson, J.S. Aiken, and J. Cetrullo. Presented by Deborah MacDonald at the 2005 MPCA Air, Water, and Waste Conference, 2005.

"A new method for mapping hydraulic conductivity using sonic methods in fractured bedrock geologic settings." Presented at the 2005 Air, Water, and Waste Conference sponsored by the Minnesota Pollution Control Agency (MPCA), 2005.

"Site-specific groundwater flow model for evaluation of landfill liner design and comparison to IWEM results" with J.R. McCain and M. Lynn. Presented during the 2004 MPCA Air, Water, and Waste Conference, 2004.

"Sedimentology and hydrogeology of two braided stream deposits" by M.P. Anderson, J.S. Aiken, E.K. Webb and D.M. Mickelson, (in press) Journal of Sedimentology special issue on sedimentology and hydrogeology, June 1999.

"A three-dimensional characterization of coarse outwash used for modeling contaminant movement." Presented at the North-Central Section Geological Society of America's 1994 Annual Meeting, Kalamazoo, Michigan, 1994.

"Current approaches to joint hydrogeological and sedimentological research." Presented at the Geological Society of America's Annual Meeting, Symposium on Sedimentologic and Stratigraphic Framework of Groundwater Resources Investigations, Boston, Massachusetts, 1993.

"Estimating hydraulic conductivity of outwash deposits using sedimentary facies architecture." Presented at the American Water Resources Association, Wisconsin Section Sixteenth Annual Meeting, LaCrosse, Wisconsin, 1992.

"Use of process simulation models to estimate the heterogeneity of hydraulic conductivity." Presented at the American Water Resources Association, Wisconsin Section Fifteenth Annual Meeting, Oshkosh, Wisconsin, March 1991.

"Preliminary characterization of a hydrogeologic facies model for an outwash sand and gravel deposit in Wisconsin." Presented at the Midwest Symposium of Research in Hydrogeology, Northern Illinois University, Dekalb, Illinois, October, 1991.

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Experience

Jim Eidem joined Barr in 2008 with more than 10 years of experience as a hydrogeologist. He has served as project manager and lead hydrogeologist on a variety of projects, including brownfield redevelopment, soil and groundwater investigation, and solid waste facility expansion. Jim's clients have included real estate developers, solid waste facilities, chemical distribution companies, and industrial manufacturing companies. He has developed and negotiated investigative scopes with the U.S. Environmental Protection Agency and with state agencies in Minnesota, Illinois, and North Dakota.

Jim has extensive experience investigating hydrogeologic conditions of glacial deposits in the Midwestern U.S. His expertise includes designing investigation plans, developing hydrogeologic conceptual models and preparation of response action plans in support of site development. Jim's field experience includes implementing operations that include soil boring logging, monitoring well installation and decommissioning, aquifer testing, soil and groundwater sampling, and vertical groundwater-quality profiling.

Brownfield Redevelopment

Jim's project experience on complex brownfield redevelopment sites within the Minnesota Pollution Control Agency's Voluntary Investigation and Cleanup (VIC) program includes assisting in the preparation of Phase I environmental site assessment reports, preparation of remedial investigation work plans and reports, development of response action plans, response action and construction oversight, contractor management, geotechnical/soil correction oversight, health and safety management, and preparation of implementation reports. Former uses at these sites included wood-treating facilities, an agricultural manufacturing facility, a lead-smelting facility, a street-sweepings disposal site, a firefighter-training/missile site, an automobile repair shop, a sand-blasting/foundry site, and a closed foundry landfill. His project work includes:

- Preparing a remedial investigation (RI) work plan for a former agrichemical manufacturing and distributing site in Brooklyn Center, Minnesota. The site had soil and groundwater impacts from past operations and a fire at the facility. Ten "high risk" areas of concern were delineated for investigation with rotasonic drilling and composite sampling. The plan was submitted to two regulatory agencies for review and approval.

- Preparing a response action plan (RAP) detailing site-wide soil management actions for preparing a site in Minneapolis for the construction of a commercial facility. Environmental impacts at the site included street-sweepings, buried debris, and off-site groundwater impacts. As part of RAP development, a phased-site investigation was conducted to fill "data gaps" in regards to environmental impact and geotechnical aspects. Impacted soils were managed on site by consolidating impacted soils beneath site pavements, constructing clean utility corridors, and vapor-barrier construction.

- Preparing a soil management plan (SMP) that detailed the methods by which soils impacted by heavy metals, organic compounds, and petroleum products would by excavated, managed, and used during response action implementation at a site in St. Louis Park, Minnesota. The SMP summarized the pre-development subsurface conditions with multiple cross-section and map-view figures, identified site soil-usage restrictions, and described soil stabilization and management methods to be employed by the earthwork contractor. The SMP was reviewed and approved by the MPCA prior to RAP implementation.

- Serving as staff hydrogeologist responsible for ensuring construction practices were conducted in accordance with the RAP at former wood-treating sites in Brooklyn Center and Fridley, Minnesota, both de-listed state Superfund sites. Also responsible for health and safety oversight, RAP implementation documentation, and weekly meetings with site contractors and project stakeholders. In addition to soil correction and consolidation, groundwater response actions involved decommissioning and relocating components of a groundwater pump-and-treat system and a DNAPL recovery system.

- Preparing the RAP implementation report for a site in St. Louis Park, Minnesota. Documented restricted waste abatement, building demolition, heavy metal stabilization, soil excavation/consolidation/capping, off-site disposal of impacted soil, export of non-impacted soil, investigation of former site utilities, well decommissioning, off-site disposal of liquid wastes, vapor-barrier construction, utility-corridor construction, utility installation, groundwater dewatering, and post-development subsurface conditions. The implementation report was approved by the regulatory agency.

- Serving as senior hydrogeologist for site visits at a windpower generation facility in Minnesota and one in Iowa as part of an effort to update existing Phase I environmental site assessments. Prepared historical site use, historic map review, city record review, and environmental database report review sections for multiple Phase I reports.

Groundwater Investigation

Jim has extensive experience evaluating the hydrostratigraphy of, and groundwater flow through, glacial units in the Upper Midwest. His graduate school research entailed developing a conceptual model to describe the glacial stratigraphy and groundwater flow throughout a 5,600-hectacre watershed in central Iowa. His project work includes:

- Serving as project manager and hydrogeologist for hydrogeologic permitting for solid-waste-facility expansions in Elk River and Glencoe, Minnesota. Developed hydrogeologic evaluation work plans and project budgets, conducted field investigations, and prepared evaluation reports. The proposed facilities included a construction and demolition (C&D) debris facility, a municipal-solid-waste (MSW) facility, and the first inward-gradient design for a landfill in the state. Detailed geologic logging and hydrogeologic data were used to develop site

conceptual models that focused on identifying the uppermost permeable groundwater-flow pathways.

- Scoping and conducting a series of hydrogeologic investigations to demonstrate groundwater discharge to a large wetland/floating bog in Elk River, Minnesota. Results of the investigation demonstrated the occurrence of groundwater discharge to the wetland complex and served as the basis for a proposal to implement surface-water compliance standards rather than conventional groundwater standards.

- Serving as project hydrogeologist for a Resource Conservation and Recovery Act (RCRA) facility investigation and corrective-measures-study pre-design investigation at a site in Omaha, Nebraska. Conducted an environmental investigation focused on determining the geologic/hydrogeologic conditions at the site and assessment of chlorinated solvent and pesticide impacts to soil and groundwater. Installation of monitoring wells up to three miles off-site required detailed logging of a sequence of loess and till deposits. Conducted data analysis and prepared numerous work plans, data transmittals, and reports documenting field activities and investigation results.

- Implementing a field investigation to determine the vertical and horizontal extent of two co-mingled chlorinated solvent plumes migrating through outwash deposits in Ringwood, Illinois. Detailed geologic logging was the key to unraveling the complex glacial stratigraphy. Continuous monitoring of groundwater stabilization parameters, along with the precise hydraulic head measurements, allowed for the collection of representative groundwater samples from the low-yield glacial deposits.

- Serving as project hydrogeologist for aquifer testing in Omaha, Nebraska. Coordinated and implemented a step-drawdown test and a five-day aquifer test to estimate groundwater flow parameters, which were used to refine a numerical groundwater-flow model and to design a long-term groundwater-extraction and treatment system. Coordination for the aquifer test included gaining approval for groundwater discharge to the combined storm/sanitary sewer, submersible pump sizing, developing internal data collection and QA/QC plans, and constructing purge-water transmission, metering, and pretreatment systems for the test.

- Serving as field team leader responsible for directing two field geologists and rotasonic drilling and sewer cleaning subcontractors. The facility was an active chemical manufacturing plant situated along a river. The project included detailed description of glacial deposits, installation of numerous monitoring wells, well development and sampling, and geophysical investigation.

Solid Waste Facilities

Jim's experience with solid-waste facilities includes nine years of groundwater investigations and compliance monitoring at a solid-waste facility in Minnesota. He has completed groundwater investigations involving geochemical, isotopic, hydraulic, and hydrogeologic components. Jim has designed long-term groundwater, surface-water, and landfill-gas monitoring systems and also has experience in

developing plans for the operation and monitoring of a leachate-recirculation system. His project work includes:

- Serving as project manager and hydrogeologist for groundwater-monitoring-network optimization, design, and installation at Elk River Landfill in Elk River, Minnesota. A review of site geologic data indicated that the existing monitoring system targeted separate hydrostratigraphic units, which led to an erroneous interpretation of groundwater-flow direction at the facility. The hydrogeologic conceptual model was revised and a new groundwater-monitoring network was installed. Monitoring results confirmed the appropriateness of the new monitoring network.

- Developing a monitoring protocol and performing down-hole and direct measurements of the moisture content of landfilled waste at two MSW facilities permitted to conduct leachate recirculation on a pilot-project basis. The monitoring protocol summarized the leachate recirculation procedures, provided specific data-quality objectives, and detailed specific monitoring and documentation methods.

- Serving as project manager and hydrogeologist for environmental monitoring program administration and reporting at Elk River Landfill in Elk River, Minnesota. Responsibilities included reviewing operating permits, developing sampling and analysis plans, coordinating laboratory and sampling crew personnel, and preparing quarterly and annual environmental monitoring reports. The quarterly monitoring reports were developed for the purpose of data transmission with a comparison of results to regulatory standards. The annual reports provided in-depth trend analyses and geochemical analysis using stiff and piper diagram interpretation.

- Serving as project manager and hydrogeologist for a hydrogeologic evaluation and well installation at Jahner Landfill in Wishek, North Dakota. The site geology consisted of fine-grained glacial deposits overlying weakly cemented bedrock units of inter-bedded shales, sandstones, and lignite deposits. Detailed geologic logging was performed in conjunction with careful observation of hydrogeologic conditions to determine effective monitoring intervals within the saturated bedrock units. The project resulted in a better understanding of the site stratigraphy and the installation of two effective network-monitoring wells.

- Serving as project hydrogeologist for a closure pre-design evaluation at a partially lined paper-sludge facility in Eau Claire, Wisconsin. Conducted a reconnaissance site visit and performed document review, a borrow study investigation, and waste-characterization sampling. Document review and site reconnaissance focused on developing an understanding of the construction and operation of the facility to develop an engineer's cost estimate for closure and post-closure care. Waste samples were collected with a lightweight/low-ground-pressure ATV drill rig using a piston-driven sampling apparatus. The borrow study was designed and implemented to determine the quality and volume of on-site fill suitable for landfill closure.

- Serving as project manager and lead hydrogeologist responsible for the design and installation of a bedrock water supply well at Elk River Landfill in Elk River, Minnesota. The well was designed and constructed with a target production rate of 50 gallons per minute and to provide compliance monitoring and water supply. Mud and air rotary drilling methods were used to construct the well to a total depth of 365 feet underground.

Site Remediation

- Serving as project hydrogeologist for the cost estimate of a groundwater corrective action at a solid waste landfill in Chicago, Illinois. Responsibilities included reviewing site hydrogeologic data, defining a rudimentary groundwater treatment system, and estimating costs for implementing the system. The client used the cost estimate for quantifying long-term liabilities for setting limits for closure and post closure costs.

- Serving as project hydrogeologist for the environmental response to three uncontrolled release sites in Geneva, Nebraska; Braham, Minnesota; and Brooklyn Center, Minnesota. Responsibilities included determining the extent of the released materials, collecting characterization samples, overseeing soil excavation and other remedial activities, and providing documentation. One project entailed responding to a water main break at a brownfield site, resulting in the transport of soils impacted with wood-treating chemicals through a sewer pipe and into a stormwater pond. Response actions included establishing site control measures, communicating with the developer and regulatory personnel, and removing soils from the sewer pipe and stormwater pond.

- Overseeing the removal of approximately 25 underground storage tank systems at U.S. Postal Service and filling station sites throughout Minnesota. Responsibilities included documenting the tank removal procedures, screening excavated soils for impacts, and collecting confirmation soil and groundwater samples. Reporting included the completion of a worksheet-style documentation report for submittal to the state.

Education

M.S., Geology, Iowa State University, 1996

B.A., Geology, University of Minnesota-Morris, 1993

Registration

Registered Professional Geologist: MN

Memberships

Minnesota Groundwater Association

National Groundwater Association

Publications

Eidem, J.M., W.W. Simpkins, and M.R. Burkart. "Geology, Groundwater Flow, and Water Quality in the Walnut Creek Watershed." *Journal of Environmental Quality.* V. 28, p. 60-88. 1999.

Simpkins, W.W., M.F. Helmke, M.R. Burkart, and J.M. Eidem. "Effect of Agriculture on Groundwater Quality and Recharge in a Till-Dominated Watershed in Central Iowa." *Geological Society of America, Abstracts with Programs.* v. 30, no.7, p. A-173. 1998.

Simpkins, W.W., J.M. Eidem, B.L. Johnson, H.H. Seo, M.F. Helmke, T.B. Parkin, and M.R. Burkart. "Applications of Stratigraphic and Paleo-landscape Analysis to Hydrogeologic Studies of a Regional Quaternary-age Confining Unit in Central Iowa." *Geological Society of Canada Annual Meeting Abstracts* A-137. 1997.

Eidem, J.M. and W.W. Simpkins. "Quaternary Stratigraphy of the Walnut Creek Watershed." *Hydrogeology and Water Quality of the Walnut Creek Watershed*. Geological Survey Bureau, Guidebook Series no. 20, p. 19-29. 1996.

Eidem, J.M., W.W. Simpkins, and M.R. Burkart. "Groundwater Flow and Water Quality in the Walnut Creek Watershed." *Hydrogeology and Water Quality of the Walnut Creek Watershed.* Geological Survey Bureau, Guidebook Series no. 20, p. 37-44. 1996.

Seo, H.H., J.M. Eidem, and W.W. Simpkins. "Hydraulic Properties of Quaternary Units in the Walnut Creek Watershed." *Hydrogeology and Water Quality of the Walnut Creek Watershed.* Geological Survey Bureau, Guidebook Series no. 20, p. 59-67. 1996.

Simpkins, W.W., J.M. Eidem, H.H. Seo, B.L. Johnson, M.F. Helmke, M.R. Weis, T.B. Parkin, M.R. Burkart, and T.B. Moorman. "Confining Units Are Not Created Equal: Quaternary History and Its Effect on Physical and Biogeochemical Processes." *Geological Society of America, Abstracts with Programs.* v. 28, no. 7, p. A-72. 1996.

Eidem, J.M., W.W. Simpkins, and M.R. Burkart. "Geological Controls on Groundwater Flow and Water Quality in the Walnut Creek Watershed of Central Iowa." *Geological Society of America, Abstracts with Programs.* v. 28 no. 6, p. 37. 1996.

Eidem, J.M., W.W. Simpkins, and M.R. Burkart. "Quaternary Geology and Groundwater Flow in the Walnut Creek Watershed, Central Iowa." *Abstracts of the Iowa Academy of Science.* 1996.

Eidem, J., W.W. Simpkins, and M.R. Burkart. "Hydrogeology of the Walnut Creek Watershed." *Abstracts of the Iowa Academy of Science.* 1995.

Simpkins, W.W., B.L. Johnson, J.M. Eidem, H. Van Iten, M.R. Weis, and T.B. Parkin. "Hydrogeology of Central and Northeast Iowa Till." *Iowa MSEA Water Quality Colloquium Proceedings and Research Updates*, M.A. Smith, ed. USDA-Agricultural Research Service and ISU Extension. p. 17-22. 1994.

Simpkins, W.W., B.L. Johnson, J.M. Eidem, and M.R. Weis. "Use of Non-Traditional Piezometer Installation Techniques for Hydrogeological Studies in the Walnut Creek Watershed." *Water, Water Everywhere… Guidebook for the 57th Annual Tri-State Geological Field Conference and Geological Society of Iowa Field Trip Guidebook 58,* Ames, IA. p. 83-89. 1993.

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MARTA NELSON
Data Quality Specialist

Experience

Marta Nelson has been with Barr for more than 20 years providing a comprehensive range of services for quality assurance/quality control (QA/QC) aspects of complex assessment and remediation projects under both state and federal environmental programs. She is currently a senior consultant who leads Barr's data quality management team handling laboratory coordination and analytical data validation for approximately two to four million dollars of annual laboratory subcontractor services covering dozens of our clients' environmental sites. Marta's extensive experience allows our clients to benefit from the pooled knowledge gained over many projects as well as her strong relationships with the top national environmental laboratories.

Marta's responsibilities include making annual examinations and improvements for Barr's quality management system, administering and implementing Barr's laboratory subcontractor audit program, reviewing and updating all Barr standard operating procedures, and overseeing system operations for data management and QA/QC. Marta maintains Barr's current knowledge of state and federal programs related to environmental cleanup standards and criteria, laboratory regulation, and laboratory methodology and certification changes. She also has extensive experience in field data collection/sampling and field analytical methods, giving her a wide spectrum of knowledge covering all aspects of environmental data quality (sampling, preservation, shipping, analytical methods, data review, data reporting, and data interpretation). Additional examples of Marta's expertise include:

- Preparing quality assurance project plans (QAPPs) and sampling and analysis plans (SAPs); validating analytical data under both contract laboratory program (CLP) and non-CLP data management guidelines; coordinating laboratory analysis and services; and preparing analytical data validation reports
- Preparation of field sampling plans and coordinating field sampling events
- Coordination with analytical laboratories on specialty analysis such as dioxin/furan analysis
- Performing audits of Barr's field technical sampling procedures
- Performing audits of analytical laboratory subcontracts
- Conducting field-tests using immunoassay and x-ray florescence technologies

An example of Marta's specialized expertise includes:

- Performing a variety of data management and coordination efforts in support of a complex and fast-track human-health and ecological risk assessment at a closed wood-treating facility. Work included assisting in the preparation of a U.S. Environmental Protection Agency (USEPA) approved QAPP covering multiple consultants and laboratories, data validation of USEPA CLP data packages, and quantification of dioxin/furans at very low concentrations in a wide variety of environmental media. Reviewed and critiqued the validation of analytical data collected separately by the local government's consultant. Effectively addressed and responded to USEPA comments and questions regarding validation of the analytical data.

Education

In addition to coursework at the University of Southern Colorado, Marta has completed specialized training in data validation/RCRA methodologies, gas chromatography, groundwater transport chemistry, field sampling and equipment training, and statistics.

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Experience

Karen Stoller has more than 29 years of experience in the areas of industrial hygiene, health and safety, and hazardous materials management. Her work at Barr includes managing the corporate health and safety program for more than 400 staff members, which entails developing and implementing health and safety policies, preparing site-specific health and safety plans, providing health and safety training for employees, managing medical surveillance and controlled-substance-testing programs, performing ergonomic assessments, and conducting exposure air monitoring. Examples of her project experience include:

- **Project Health and Safety Plan Development:** Prepared numerous safety plans for investigation and remediation of coal gasification sites, industrial and municipal landfills, petroleum release sites, scrap yards, petroleum refineries, and lead smelters.
- **Site Safety Officer:** Monitored health and safety on hazardous waste sites. Responsibilities included conducting daily safety meetings, performing air monitoring, observing personal-protective-equipment use, implementing site control procedures and assuring that site operations were consistent with the project health and safety plan.
- **Opus:** Reviewed and updated corporate health and safety training manual. Presented OSHA overview at corporate conference.
- **Minnesota County Environmental Health:** Managed project and conducted county-wide environmental health and safety audits. Work included audit protocol development to determine the level of regulatory compliance and implementation throughout all county divisions.
- **Computing Devices International:** Managed an environmental, health, and safety audit for three Minneapolis facilities. Conducted regulatory evaluation to determine compliance with Minnesota OSHA and Minnesota hazardous-waste-management rules.
- **U.S. Postal Service, Bulk-Mail Facility:** Managed project and conducted safety inspection to identify pinchpoints and rotating equipment that would require guarding or other protective systems in accordance with OSHA regulations. Worked with architects on design of guarding systems.
- **Jostens:** Managed a three-day environmental health and safety corporate conference and presented on several technical topics. Also presented health and safety regulatory information at a subsequent Jostens corporate conference.
- **Electrolux:** Managed several air monitoring projects to determine the extent of employee exposure to hazardous substances.
- **Midwest Center for Occupational Heath and Safety:** Participated in semi-annual 40-hour hazardous waste operations training program as a member of faculty and planning committee. Topics included air monitoring equipment and site safety plans.

- **VeraSun Energy:** Provided exposure monitoring oversight for hexavalent chrome air monitoring.
- **Confidential Former Cement Plant:** Work at this site is being conducted under the oversight of the U.S. EPA and the Michigan Department of Environmental Quality for compliance with an issued CERCLA § 106(a) order. The removal action work included expedited removal actions, extensive site characterization, and interim response activities. Karen provided exposure monitoring oversight for collection of total and respirable silica dust during remediation activities.

Prior to joining Barr, Karen held positions in environmental consulting, private industry, and county and federal agencies. She also managed corporate industrial hygiene programs and conducted health and safety audits and OSHA compliance inspections involving collection of exposure air monitoring samples that included organic vapors, dust, silica, and asbestos, while with the OSHA federal enforcement program in Wisconsin, and managed in-plant industrial hygiene programs at Control Data Corporation's printed-circuits operation.

Education

M.S., Environmental Health, University of Minnesota, 1990
(emphasis: Industrial Hygiene and Hazardous Waste Management)
B.A., Biology, State University of New York at Oswego, 1978

Certifications

Certified Industrial Hygienist

Certified Safety Professional

Certified Hazardous Materials Manager

Memberships

American Industrial Hygiene Association

American Society of Safety Engineers

American Society for Training and Development

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