BRAUN INTERTEC

The Science You Build On.

Minnesota Pollution Control Agency

REQUEST FOR PROPOSAL
REMEDIATION MASTER CONTRACT

April 11, 2018

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Braun Intertec Corporation
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Minneapolis, MN 55438

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Web: braunintertec.com

April 11, 2018

Minnesota Pollution Control Agency
Minnesota Department of Agriculture

To whom it may concern,

The Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Agriculture's (MDA) request for assistance to clean up Superfund, Petroleum, and agriculture chemical (Ag-chem) sites demonstrates the state's commitment to the health and safety of its residents and to the restoration and protection of the environment. We appreciate the opportunity to respond to the request and to demonstrate our service capabilities and relevant work experience in connection to Category A – Petroleum, Superfund, MDA, Closed Landfill Program Environmental Services as listed in the Request for Proposal (RFP) dated February 28, 2018.

In 1957, company founder Jack S. Braun was newly graduated from the University of Minnesota with a B.S. in Civil Engineering when he started providing soil testing services from his Minneapolis home. As the company grew and evolved to adapt to industry changes, new services were added. Today, we are a 100% employee-owned consulting firm that provides environmental consulting, geotechnical engineering, building sciences and testing solutions for private and public sectors with offices across the central United States. As we continue to build relationships in emerging markets and recruit new talent, we never lose sight of our humble beginnings and the many strong and supportive relationships we have formed along the way. It is our goal to be the Consultant of Choice. Each of our employees is dedicated to making this goal a reality every day by building strong client and business partnerships.

Assisting public and private organizations and property owners with site evaluations, remedial investigations, remedial actions and monitoring the natural and built environment has been at the heart of Braun Intertec since we opened our door in 1957. Braun Intertec is currently a 100% employee-owned company with more than 1,000 employees across 30 offices representing multiple technical disciplines including environmental consulting, geotechnical engineering, testing, special inspections, and facilities evaluations. Our multi-disciplinary expertise and wealth of resources enable us to develop cost-effective solutions while providing timely, quality service to our clients.

The Braun Intertec main office is located at 11001 Hampshire Ave S, Minneapolis, MN 55438. In addition to staff being assigned to this contract from our main office, we will also leverage our branch offices located in St. Paul, Duluth, Fargo, Hibbing, La Crosse, Mankato, Rochester and St. Cloud.

Mr. Stephen T. Jansen will serve as the point person for the Braun Intertec team to answer any questions about the proposed contract with the MPCA/MDA. During implementation of our work under the contract, Mr. Jansen will maintain communications with each Braun Intertec project team and MPCA/MDA representatives as discussed in the Project Management section of the enclosed proposal.

Stephen T. Jansen, MS, PG – Principal Scientist
11001 Hampshire Ave S, Minneapolis, MN 55438
952-995-2645 – direct
612-599-2219 - cell
sjansen@braunintertec.com

In addition, Braun Intertec has assigned several experienced professionals located across all of our offices to be available to you on a daily basis, and these professionals have been specifically targeted for use under the proposed contract.

We are uniquely qualified to help the MPCA and MDA achieve the stated goals for this contract. Braun Intertec provides full-service environmental services in all of the areas you have requested, and have several related capabilities that may be of added value to your contract. As you will see in the attached Proposal, our staff has the education, specific experience, and tools to perform the required tasks. We have been doing this work in Minnesota for many years. In addition, the following capabilities and experience set Braun Intertec apart from other firms in Minnesota:

- Braun Intertec has held and completed work under the MPCA Level 2 Contract since 2013 and members of our project team have worked for the MPCA and MDA under similar contracts since 2008.
- We have 9 offices located within or immediately adjacent to the State of Minnesota and can readily respond to projects throughout the State efficiently and effectively.
- As a 100% employee owned company, our employee-owner culture fosters client-focused solutions and quality deliverables from a collaborative team.

In submitting this proposal, Braun Intertec accepts the Classification Levels and Rates – Schedules 1 and 2 and the Equipment and Supplies List as stated in the RFP dated February 28, 2018 and Addendum No. 1 dated March 19, 2018.

Thank you again for the opportunity to demonstrate our capabilities and experience. If you have any questions regarding this submittal, please contact Stephen Jansen at the number or email provided above.

Sincerely,

BRAUN INTERTEC CORPORATION

Stephen T. Jansen, MS, PG
Principal Scientist

Christopher F. Thompson, PE
Vice President – Principal Engineer

2. Qualifications and Capabilities

Company Capabilities

Assisting public and private organizations and property owners with site evaluations, site preparation recommendations and construction support services has been at the heart of Braun Intertec for more than five decades. Braun Intertec consists of more than 1,000 employees representing multiple technical disciplines including environmental consulting, geotechnical engineering, testing, special inspections and facilities evaluations. Our multi-disciplinary expertise and wealth of resources enable us to find cost-effective solutions while providing timely, quality service to our clients.

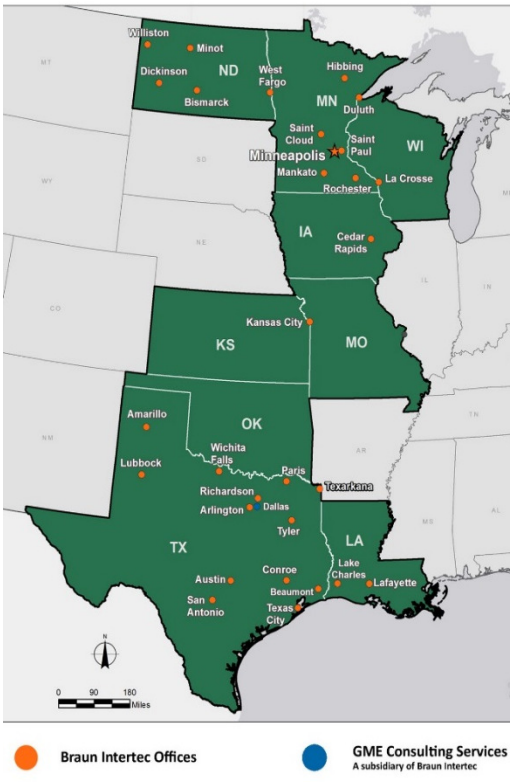
The expertise, experience and commitment to quality instilled in our engineers, scientists, managers and field personnel have helped Braun Intertec establish ourselves as an environmental consulting industry leader in the State of Minnesota. A rigorous quality assurance/quality control program and numerous national accreditations at Braun Intertec support our staff's expertise.

In June of 2016, Braun Intertec was honored to be named one of the “Top Workplaces" in Minnesota by the *Star Tribune* and we continually strive to be a workplace that respects and partners with our employees, clients, and communities to build an encouraging culture and create innovative solutions. We strongly believe that a collaborative and healthy work environment results in an enhanced client experience. **We enjoy what we do, and it’s reflected in our level of service.**

The Braun Intertec team is located in offices throughout Minnesota and adjacent states to efficiently and effectively respond to projects anywhere within the state; with a deep bench of technical experts with the specialized experience relevant to this contract located throughout our firm.

OFFICE NAME	OFFICE LOCATION	PHONE NUMBER
CORPORATE OFFICE	**11001 HAMPSHIRE AVE. S BLOOMINGTON, MN 55438**	**952-995-2000**
Duluth, MN	4511 West First Street, Suite 4 Duluth, MN 55807	218-624-4967
Fargo, ND	526 10th Street NE, Suite 300 West Fargo, North Dakota 58078	701-232-8701
Hibbing, MN	3404 15th Ave E, Suite 9 Hibbing, Minnesota 55746	800-828-7313
La Crosse, WI	2309 Palace Street La Crosse, Wisconsin 54603	608-781-7277
Mankato, MN	2120 Howard Drive W, Suite B North Mankato, MN 56003	507-594-3000
Rochester, MN	4210 Highway 14 East Rochester, MN 55904	507-281-2515
St. Cloud, MN	3900 Roosevelt Road, Suite 113 Saint Cloud, MN 56301	320-253-9940
St. Paul, MN	1826 Buerkle Road Saint Paul, MN 55110	651-487-3245

Braun Intertec Office Locations



Our Services

Braun Intertec offers comprehensive environmental consulting services provided by engineers and scientists with extensive industry experience. We take pride in our multi-faceted, common sense approach to our work. We understand that one answer does not fit all, and during the process of completing investigations and developing environmental solutions, our staff of geologists, hydrogeologists, engineers, and scientists **maintain a clear understanding of project objectives**.

Our expertise spans a wide range of practice areas, regulatory arenas and diverse market sectors. From environmental assessments to remedial design and construction, Braun Intertec is a trusted advisor to dozens of public entities and hundreds of private clients. Our proposed project staff is extremely knowledgeable in state and federal guidance for conducting environmental investigations and cleanups, NEPA and permitting services. We have solid working relationships with Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Agriculture (MDA) staff and other related and pertinent regulatory staff.

Braun Intertec has **unmatched Brownfield Site investigation and cleanup experience in Minnesota, a crucial asset** for an engineering oversight contractor. Based on years of environmental consulting experience, we understand the complexities of buying and selling contaminated properties in Minnesota. Our experience with these complexities ranges from small industrial sites to major projects such as the Former Naval Industrial Ordnance Plant/Northern Stacks site. **We know that what you don't see can result in the greatest risk and the highest liability, especially when the intended future use includes residential redevelopment**.

Resumes

The Braun Intertec team includes, among others, Steve Jansen, Mark Keefer, Steve Norris, Imants Pone, and Becca Primus, who have been providing high quality and responsive services to the MPCA and MDA through the Superfund (Level 2) contract since 2008 under the current Braun Intertec contract and at previous firms. This core group of project managers has the technical project knowledge and experience and a thorough understanding of the State's contracting requirements.

Individual resumes of key staff are included in **Appendix 1.**

Staff Matrix

We have included two matrices which highlight the experience and capabilities of our staff.

Our **Experience Matrix** provides a listing of staff, classification, Occupational Safety and Health Administration (OSHA) certification, years of service with the company, educational experience, work experience, licenses and certifications held, and the location of each individual assigned to the Contract (i.e., local, home or regional office).

Our **Personnel Classifications Matrix** provides the classification(s) for each staff member based on their qualifications, skills and experience for the scope of services requested for this proposal.

The matrices are located in **Appendix 2**.

Federal and State Agency/Department Experience

Braun Intertec has a long history of providing environmental investigation services to public clients, including Brownfield redevelopment projects and providing technical input to and oversight of other professionals working on these projects. We are diligent advocates for our clients, we understand their objectives, and we work tirelessly to achieve these objectives.

Braun Intertec has a current Level 1 – Petroleum and Level 2 – Superfund contract with the State of Minnesota. Since contract award in 2013, we have provided services on Superfund Sites and petroleum-contaminated sites and have worked extensively with the Minnesota Targeted Brownfields Assessment Program (MNTBAP) using our Level 2 contract to investigate community-based Brownfield redevelopment sites.

Braun Intertec was awarded the 10-year State of Kansas Department of Health and Environment – Environmental Services contract in early 2016 and the 4-year State of Texas Commission on Environmental Quality (TCEQ) – Petroleum Storage Tank Site Activities Services contract in September 2017; both of which provide similar services requested by the MPCA for state agencies.

In addition, Braun Intertec has successfully completed many projects for other State and Federal agency's including, but not limited to, the Minnesota Department of Transportation (MNDOT), the Army Corp of Engineers, the United States Environmental Protection Agency (EPA), the Minnesota Department of Natural Resources (MNDNR), the MPCA, The Minnesota Department of Administration, the University of Minnesota, the Metropolitan Council, MDA, Minnesota Department of Human Services, Metropolitan Airport Commission, The United States Air Force – 934th Airlift Wing, Federal Environmental Management Agency, United States Geological Survey (USGS), Wisconsin Department of Natural Resources, the General Services Administration (Federal Bureau of Investigation) and Minnesota State Colleges and Universities (MnSCU).

Knowledge of Guidance Manuals and Documents

Braun Intertec has extensive experience providing environmental consulting services for petroleum Brownfield sites, Voluntary Investigation and Cleanup (VIC) program Sites, Resource Conservation and Recovery Act (RCRA) Corrective Action Sites, Superfund Sites in Minnesota and Agricultural Voluntary Investigation and Cleanup (AgVIC) sites. Our staff has detailed knowledge of the applicable guidance documents and manuals, and the related Federal and State regulations.

MPCA Risk-Based Site Evaluation Manual

The MPCA Risk-Based Site Evaluation Manual is composed of individual documents that provide a procedure for the user to make risk-based decisions for site investigations and remedial strategies within the VIC, State Superfund and State RCRA Corrective Action Programs. The documents provide the framework for site characterization, community involvement, and for a tiered decision-making process based on the evaluation of risk to human health and the environment. Braun Intertec has utilized the MPCA Risk-Based Site Evaluation manual on many sites, some of which have been large and complex sites that have had multiple contaminants with both MPCA and MDA jurisdictional oversight. Utilizing this guidance, Braun Intertec has developed site-specific soil cleanup standards for sites within the MPCA VIC and Superfund programs that have been used for implementing risk-based cleanup actions.

Underground Storage Tank (UST) and Aboveground Storage Tank (AST) Release Guidance Documents and Fact Sheets

These documents provide guidance for managing UST and AST release sites in Minnesota. The documents vary from guidance on soil characterization/treatment methods to reporting requirements, and provide a risk-based approach to correction action at petroleum release sites with the ultimate goal of protecting human health and the environment. Varied approaches to petroleum releases are incorporated that allow low-risk sites to be quickly closed, and so high-risk sites can be effectively assessed and mitigated to reduce short-term risk and allow for natural attenuation to reduce long term risk.

The Petrofund was established, in part, to provide a financial incentive for responsible parties to investigate and cleanup petroleum releases, in a timely manner, so that they do not linger and potentially increase the severity of the impact. The Petroleum Brownfield Program allows voluntary parties to investigate and cleanup petroleum releases without incurring certain liabilities of a responsible party that would otherwise hinder Brownfield redevelopment.

Braun Intertec staff has used these documents and fact sheets successfully on hundreds of sites across Minnesota.

VIC Guidance Documents

The Voluntary Investigation and Cleanup (VIC) program is a fee based program that provides technical, administrative or legal assurances to individuals or businesses for site investigation and/or remediation. The guidance documents provide assistance to the voluntary parties working with VIC personnel. Specifically, the guidance documents provide an overview of the VIC program, the types of written assurances available to voluntary parties, and investigation and documentation details that voluntary parties can use on their sites.

Since inception of the Property Transfer/Technical Assistance and VIC Programs, Braun Intertec has assisted hundreds of clients through these programs. We have completed several major investigations and corrective actions at sites that previously could not sustain development, and we are proud to see the results of the new developments.

Braun Intertec has extensive experience using the VIC documents, preparing/performing site investigations and Response Action Plans (RAPs) and working with VIC staff to implement the response actions. Through our extensive work in the VIC program Braun Intertec has developed good working relationships with MPCA VIC staff.

As a full-service environmental consulting firm, Braun Intertec provides all of the necessary components to evaluate a site using the VIC Program, including:

- Phase I and Phase II ESAs
- Remedial Investigations
- Sampling and Analysis Plans
- Focused Feasibility Studies
- Remediation Design and Engineering
- Site Safety Plans for Corrective Actions and Site Development

MDA Guidance Documents

These guidance documents provide an overview of the MDA program, and provide specific planning and investigation methods/approaches to characterize sites with agricultural chemical or wood treating impacts. Braun Intertec staff has utilized these guidance documents to perform property transfer assessment, remedial investigations, and cleanups at many agricultural chemical sites.

Knowledge of Regulations and Statutes

Essentially all of our significant investigation and cleanup projects in Minnesota are performed in compliance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and the Minnesota Environmental Response and Liability Act (MERLA). The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), RCRA and VIC programs are essentially based on the NCP.

The specific requirements of the NCP that are most significant are:

- Reporting of release requirements
- Defining and selecting a remedy (Remedial Investigation/Feasibility Study)
- Data validation (QA/QC)
- Keeping a proper administrative record and the public participation or the degree and extent of public involvement associated with the project.

Minnesota Environmental Response and Liability Act (MERLA)

Environmental investigation and remediation is the core of the services that Braun Intertec's Minnesota environmental group performs. The environmental staff at Braun Intertec has extensive experience operating under MERLA regulations. MERLA, commonly known as the 'State Superfund', is a complementary law to CERCLA, which created a fund and provides regulatory authority to the MPCA, and later amended to include the MDA, to take action, spend funds, and/or direct actions to address releases or threatened releases of hazardous substances, contaminants and agricultural chemicals within Minnesota. The Agencies may take the project lead or pursue action from a `Responsible Party'. This statute also provides State Agencies with authority to recover costs from Responsible Parties for investigation and cleanup work. Braun Intertec has completed hundreds of successful projects dealing within the regulatory framework of MERLA within the State of Minnesota.

Land Recycling Act (LRA)

This act facilitates the cleanup of properties with Superfund liabilities by providing the basis and mechanisms for the State to provide liability protection to voluntary parties that address hazardous substance releases. The LRA provides certain statutory liability protections to lenders, businesses and investors affiliated with contaminated sites in Minnesota and extend that protection to consultants and contractors through performance of work consistent with approvals. The LRA and the associated voluntary programs are used on most "Brownfield" redevelopments that Braun Intertec has performed.

Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

A 1980 law commonly known as the Federal Superfund Program, the CERCLA created a tax-based fund for the cleanup of orphaned National Priorities List (NPL) sites. CERCLA also provides authority to the US EPA to respond to releases or threatened releases of hazardous substances that may endanger public health or the environment. Braun Intertec staff have worked with and applied the requirements of CERCLA-specific guidance and policy documents for feasibility studies, pre-design, design, and construction required for implementing remedial solutions at contaminated sites.

Resource Conservation and Recovery Act (RCRA)

RCRA is a 1976 law that is the primary Federal law governing the generation, management and disposal of hazardous wastes. RCRA encompasses a cradle to grave approach to waste management that reaches from waste generation to waste disposal and includes provisions for corrective action. Braun Intertec staff have experience performing environmental services at several RCRA sites in Minnesota and around the country.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP)

The NCP is the federal government's plan for responding to both oil spills and hazardous material releases. The key provisions of the NCP as they apply to our work include the requirements for notification of any discharge, public notice, and public participation in remedy selection and the need for Quality Assurance Project Plans (QAPPs). Braun Intertec staff has demonstrated the ability to present technical site information and cleanup details to the general public in an understandable manner.

Other Pertinent State and Federal Regulations

Our staff is familiar and experienced with regulations concerning hazardous material abatement, restricted waste characterization and disposal, building demolition, storm water management, and land disposal restrictions (LDRs). Braun Intertec staff deal with local, state and federal regulations every day as we prepare and implement remedial actions for hazardous substances, hazardous waste, regulated wastes, contaminated soil, groundwater and vapor.

Remedial Investigation Experience

CITY OF FRIDLEY CIVIC CENTER DEVELOPMENT/FORMER COLUMBIA ICE ARENA

PROJECT LOCATION
Fridley, Minnesota

PROJECT DATES
August 2014 to est. May 2018

OWNER
City of Fridley
John Lennander
6431 University Avenue NE
Fridley, MN 55432
(763) 572-3551
Jon.Lennander@fridleymn.gov

CLIENT
Same as Owner

Services Provided: Phase I ESA, Limited Site Investigation; tank removal oversight and sampling; Remedial Investigations; hazardous materials building surveys; hazardous materials abatement specification preparation, hazardous materials abatement specification oversite; demolition specification preparation; two RAPs; RAP implementation oversight; petroleum excavation and off-site disposal; perfluorocarbons (PFC) excavation oversight and off-site disposal, confirmation sampling; groundwater investigation; groundwater dewatering permitting, sampling and administration; reporting.

Subcontractor Services: analytical services, some drilling services, excavation services, abatement services, demolition testing services.

Project Description: The Site includes three parcels owned by the City of Fridley totaling approximately 36 acres. The project included the investigation of the former Columbia Ice Arena parcel, as well as the adjacent City of Fridley Public Works facility, former firefighting training center and the adjacent Locke park property. The City of Fridley is currently redeveloping portions of the site into a new City Civic Center complex. The work required multiple remedial investigations to address various areas of concern identified at the Site. The City of Fridley Public works complex included multiple buildings, one current and former fueling UST tank basins and associated dispenser islands, vehicle maintenance facilities, exterior equipment (including paving equipment) storage, chemical storage areas, and area of historic dumping of regulated materials. Environmental issues associated with the Site included several leaking USTs (gasoline, field oil, and diesel), a former UST that was historically open to the public for disposing of used waste oil, an onsite burn pit and vehicle burn area in the firefighting training area, the use of firefighting foams that contained PFCs, and various areas of historic dumping or outdoor chemical storage. Braun Intertec reviewed the available historic information, and performed multiple remedial investigations to investigate the various areas of concern. These remedial investigations included the use of soil borings, temporary and permanent monitoring wells, test trenches, soil vapor sampling, sub-sab vapor sampling, surface water sampling and surface soil sampling.

The remedial investigations identified and the delineated the extents of onsite impacts from various chemicals of concern including: petroleum, carbon PFCs, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals in soil; PFCs, petroleum VOCs in groundwater, and carbon tetrachloride and other VOCs in soil vapor. The results of the remedial investigations were used to design response actions for the Site in support of the redevelopment. The MPCA-approved response actions were successfully implemented to address the impacts at the Site.

Challenges/Solutions: The Site included multiple areas of concern and various petroleum and non-petroleum impacts to soil, groundwater, and soil vapor contaminants. Other challenges included working around and in coordinating with the demolition of various structures and the construction of the new Civic Center development, and dealing with situations such as an unknown buried tank discovered during demolition activities. Solutions included preforming phased investigations, dealing with unexpected issues, using personal with experience on large brownfields developments, and working closely with the City, the construction manager for the development, and the project contractors to assure a successful implementation of the various response actions, building demolition and soil correction. The large scope and time requirements required constant communication and multiple site meetings to ensure a successful project.

Key Personnel: Mark Keefer, PG – Project Manager, Senior Geologist,
Christopher Thompson, PE – Principal In charge, Field Personnel – Steve Norris, Logan Seipel, Timothy Molitor, and Brook Jacobson.

UNION FLATS

PROJECT LOCATION
St. Paul, Minnesota

PROJECT DATES
08/2017 – 03/2019

CLIENT/OWNER
St. Paul Leased Housing Associates VIII, LLLP
Owen Metz
2905 Northwest Boulevard, Suite 150
Plymouth, Minnesota 55441
763.354.5618
ometz@dominiuminc.com

Services Provided: Phase I ESA, Hazardous Building Materials Inspection, Geotechnical Evaluation, Phase II Investigation, RAP/Construction Contingency Plan (RAP/CCP), Abatement and Remediation Specifications, Regulatory Assurances, Turnkey Remediation, Grant Management, and Construction Materials Testing (CMT)/Special Inspections.

Subcontracted Services: analytical testing, drilling, abatement, and soil remediation.

Braun Intertec completed environmental assessment and investigation activities at the Site, including multiple rounds of subsurface investigations to identify, characterize and delineate the extent of petroleum and non-petroleum soil, groundwater and soil vapor impacts. The investigation activities also included identification and quantification of asbestos-containing materials (ACM) and other hazardous materials in the former building prior to demolition.

Braun Intertec developed a RAP/CCP and plans/specifications to address the identified soil, groundwater and soil vapor impacts; which included removal of up to 34,000 tons of contaminated soil and installation a sub-slab vapor intrusion mitigation system for the new apartment complex. In addition, Braun Intertec prepared specifications for abatement of ACM and removal of hazardous materials from the former buildings.

Braun Intertec assisted the Client/Owner with obtaining regulatory liability assurances and approvals from the MPCA VIC and Petroleum Brownfields Programs and submitted applications to various agencies for environmental cleanup grant funding.

Project Description: The Site consisted of three contiguous parcels totaling approximately 3.37 acres in size, including: 791 Hampden Avenue, 2296 Territorial Road and 2300 Territorial Road.

The former building on the 2296 Territorial parcel was occupied by Crane Company, a manufacturer of valves, fittings, and steam supplies from the time the building was constructed until the late 1960s. The building was subsequently occupied by heating/HVAC and mechanical contractors including the most

recent occupant, Hunt Electric, which first occupied the building in 1974. The 791 Hampden parcel buildings were originally utilized by the Northwestern Blaugas Company. This company manufactured of compressed/liquefied oil gas and a purified phenols through extraction from wood tar. Additional structures including smaller buildings, a water tower, gas holders, ASTs and USTs, and creosote stills were formerly present on this parcel.

It appears that Northwestern Blaugas appears to have occupied the Site through at least 1959. The parcel was then occupied by Hassett Oil Company through the mid-1980s, after which the parcel was occupied by a mechanical contractor and then Hunt Electric. Historical information indicates that chemicals and/or petroleum products that were used and/or stored on the Site included gas oil, gasoline, fuel oil, creosote, naphthalene, and sulphuric acid. These products were stored in ASTs and USTs. The ASTs sizes appeared to range from 50,000 to 400,000 gallons. The USTs appear to have included two gasoline tanks that had 4,000 and 6,000 gallon capacities, and a 1,000 gallon fuel oil tank. It appears that the largest AST was removed by 1962 with the remainder of the tanks removed in the 1980s.

A fuel oil release was reported in regard to the east portion of the Site in 1988 and subsequent petroleum release investigations were completed in several phases through 1990. Corrective actions included conducting groundwater monitoring; however, no soil remediation was completed.

Redevelopment activities for the Site have included demolition of the existing Site structures and improvements, and construction of a four-story apartment complex, including underground parking, with approximately 212 units and associated interior and exterior common amenity spaces. Soil cleanup activities are mostly completed and construction is in progress.

Challenges/Solutions: Challenges to site redevelopment included the following:

- Obtaining environmental cleanup grant funding to help offset the significant environmental remediation costs.
- Excavation of contaminated fill soil during winter/frozen soil conditions.
- Removal of buried pipes with ACM wrap/insulation.
- Remediation of a buried tank vault containing several thousand gallons of petroleum and phenol impacted liquid, sludge and debris. This included pumping out the liquid and sludge, removal and disposal of the debris, cleaning and disposal of the tank from the vault, and segregation/disposal of the stained/impacted concrete vault floor and walls.

Key Personnel: Derek Schilling, Steve Jansen, Julie Baumeister, Steve Norris, Ann Morin-Jansen, Richard Fons, Steve Luth, and Bruce Schaepe

3. Scope of Services

Experience with Agricultural Chemical Investigation and Cleanups

Braun Intertec Staff has significant experience with agricultural chemical investigation and cleanup projects. Our staff is well versed in the MDA documents that guide agricultural chemical investigations and cleanups. Staff at many of our offices have performed agricultural chemical investigations and clean ups at sites from small co-ops to large manufacturing/ distribution facilities in the State of Minnesota and in adjacent states. Our Staff have investigated sites found to be impacted with liquid and bulk dry fertilizers, MDA list 1, 2 and 3 pesticides (and pesticide/herbicide compounds not included on the MDA lists), and various metals and elements associated with agricultural releases such as zinc, arsenic, selenium, copper and others. Our site investigations have included collecting potential impacted surface water samples for aquatic toxicity testing and other investigative activities related to agricultural chemical releases. Our Staff has the first-hand experience and knowledge of agricultural facilities including distribution and manufacturing facilities, aerial distribution facilities, and ground application, this provides our staff the knowledge to understand where agricultural spills and impacts are likely to have occurred based on site use history and the visible signs that releases potentially occurred. Often, agricultural sites include impacts from non-agricultural compounds such as petroleum or hazardous chemicals. Our staff is experienced working with the MDA and MPCA to prepare response action plans and remediate impacts on sites that involve both of the regulatory agencies. Our staff has investigated and prepared plans, and oversaw the remediation of a fertilizer facility in western, MN where over 500 tons of impacted soils were successfully remediated, also a large former agricultural plant in Brainerd, MN. We performed several recent remedial investigation at large former agricultural manufacturing facilities in Savage, MN, Brooklyn Center MN, as well as 9 active agricultural facilities throughout Minnesota. Our staff have performed site assessment and transaction screenings at several agricultural facilities in, Minnesota, Illinois, Kansas, North and South Dakota. In North Dakota, our staff worked with the local regulators to accept MDA's guidance and procedures for the investigations performed in North Dakota. Braun Intertec recently developed a Remedial Investigation and Corrective Action Plan (RI/CAP) to document the completed assessment activities and to provide a plan for remediation and management of the agricultural chemical impacted soil at the CPS-Fairmont site in Fairmont, MN (see project description in Section 4 of this proposal).

Experience with Remediation Technologies

Braun Intertec staff has experience designing, implementing and, where applicable, operating and maintaining the following types of remediation technologies.

- Sub-slab soil vapor mitigation
- Soil vapor extraction (SVE)
- Groundwater pump and treat (air stripping, granular activated carbon, thermal)
- Permeable reactive barriers
- Land farming
- In situ bioremediation (e.g., in situ reductive dechlorination, enhanced bioattenuation)

- Multi-phase extraction (MPE)
- Non-aqueous phase liquid (NAPL) recovery, light and dense
- Free-phase product recovery systems
- Soil excavation
- Soil mixing to stabilize/thermally treat VOC-impacted soil and stabilize metals-impacted soil
- Chemical oxidation
- Air sparging
- Impervious cover placement
- Passive/Active vent systems and underfloor vent systems
- Groundwater interceptor trenches
- Monitored natural Attenuation
- Soil Roasting
- Bio-piles

Experience with Scope of Services

Prepare Engineering Evaluation Costs Analysis (EECA)

Braun Intertec has experience developing all aspects of Engineering Evaluation Cost Analysis (EECA) documents. An EECA, similar to a Feasibility Study, is a document where remedial goals are defined and provides supporting information which allows the MPCA to make decisions regarding cost effective remedial alternatives that meet implementation schedules. Recent sites where we prepared the EECA and/or related documents included:

- Demolition of a 2 million square foot building and the associated soil groundwater and soil vapor remedial action implementation of a 120-acre former Superfund/RCRA Site in Fridley.
- Hazardous material abatement and demolition of an eight story skyscraper in downtown Minneapolis.
- Costs to design and install a sub-slab depressurization systems at several sites through Minnesota.
- Costs to demolish an existing warehouse in order to perform an extensive agricultural remedial action implementation for a bulk fertilizer plant in Savage.
- Costs for the environmental cleanup and geotechnical work for the new City of Fridley City Hall and public works Civic Center complex in Fridley.

Oversee or conduct pilot testing of remediation systems

Braun Intertec staff have experience pilot testing remediation systems. Pilot tests are conducted for a variety of reasons including determining the feasibility of a remedial technology to a particular site and/or contaminant, obtaining site-specific data for detailed system design, and confirming that bench-scale testing results will translate to full-scale implementation.

Our staff has conducted pilot tests for soil vapor mitigation systems SVE systems, groundwater pump and treat systems, in-situ/ex-situ bio remediation systems, free product recovery systems, and others. Most recently we pilot tested and implemented full scale vapor mitigation systems for former dry cleaners in Minneapolis, Bloomington and Apply Valley and SVE systems at industrial facilities in Fridley and Lacrosse, Wisconsin. For the I35W bridge reconstruction, Braun Intertec, conducted a pilot study for the treatment of contaminated groundwater to prepare for the installation of a 70-foot deep utility drop shaft and associated 200-foot utility tunnel through an area of concentrated coal tar and petroleum contamination. The pilot study resulted in treatment of contaminated groundwater encountered during the project using a portable air sparging unit. The treated groundwater was then directly discharged into the on-site

sanitary sewer. Direct treatment of the contaminated groundwater was crucial for time management and project space considerations. Braun Intertec recently completed a bench scale study for the treatment of chlorinated solvent impacted source soils at the BAE RCRA site in Fridley, MN. The bench scale study was used to design an ex-situ treatment to reduce chemical concentrations in the source soils to allow onsite reuse of the soils. A more detailed description of the bench scale study and associated treatment of the source soils at the BAE RCRA site is included in the project description in Section 4 of this proposal.

Operate and maintain remediation systems

Braun Intertec staff has experience operating and maintaining various types of soil, soil vapor and groundwater remediation systems. Currently, Braun Intertec staff in Minnesota are maintaining four operating SVE systems, numerous vapor mitigation systems, and two groundwater pump and treat systems. In recent years, we have maintained several other pump and treat groundwater systems, free-product recovery systems, in-situ and ex-situ bioremediation systems, SVE systems, and more.

It is our goal to ensure that each remediation system is operated in a manner that maximizes the system effectiveness and minimizes operational costs. To that goal, we maintain accurate system records, perform routine maintenance, and review operational costs. Braun Intertec routinely reviews monitoring data on an appropriate site-specific time interval to assess the need for system enhancements and shorten the time period during which the remedial system needs to remain in operation.

An important aspect of remedial system operation and maintenance is the ability to troubleshoot systems in order to remediate problems and to reduce down time. Braun Intertec engineers, geologists and field technicians are experienced in system operation and maintenance and are able to quickly determine which system components need rehabilitation, replacement or repair and can get the right parts or contractors to the site and get the system operating again as quickly as possible.

Prepare corrective active design documents (e.g. CAD design reports, pilot test reports, installation notification reports, monitoring reports, plans, and as-built reports)

Braun Intertec is experienced at preparing and evaluating Corrective Action Design (CAD) and Corrective Action Plan (CAP) documents including CAD designs, pilot test reports, monitoring reports, as built reports, plans and installation reports. We are familiar with and have experience using the MPCA and MDA guidance documents for CAD and CAP on sites throughout Minnesota. Braun Intertec recently completed a bench scale study and documentation report for treatment of chlorinated solvent impacted source soils at the BAE RCRA site in Fridley, MN. The bench scale study was used to design an ex-situ treatment to reduce chemical concentrations in the source soils to allow onsite reuse of the soils. A more detailed description of the bench scale study and associated treatment of the source soils at the BAE RCRA site is included in the project description in Section 4 of this proposal. This project included submittal of a design report, pilot test report, and as-built report to MPCA.

Prepare Health and Safety Plans (HASPs)

We complete a site specific HASP for every project before any on-site activity is initiated. The HASPs comply with OSHA 1910.120. All on-site personnel must review the site-specific HASP and sign off on the daily Tailgate Safety Field Meeting Form. A safe working environment is the top concern on all of our projects.

Braun Intertec has established guidelines to provide and maintain safe working conditions, free of recognized hazards, and to follow operating practices that will safeguard all employees. We comply with applicable regulatory requirements imposed by federal, state, and local laws, rules and regulations. Management is responsible for the implementation of corporate health and safety procedures within their respective departments. Further responsibilities include: ensuring that employees are made aware of, and are properly trained in, all relevant safe operating procedures; and ensuring that accidents are recorded, investigated and reported to the corporate health and safety officer in a timely manner.

The corporate health and safety officer has the responsibility of interfacing with management, employees and outside agencies on health and safety programs, and acting in a technical and advisory capacity for departments. This includes providing advice and assistance to staff of all levels on aspects of accident prevention through means of normal channels of communication and formal training techniques. The corporate health and safety officer is also responsible for monitoring the company's compliance with existing health and safety policies and procedures.

Oversee site investigation services for soil boring advancement and monitoring well installation using both standard drilling methods and push probes

Braun Intertec staff has extensive experience overseeing the installation of soil borings and monitoring wells using varied drilling techniques including direct push, hollow stem auger (HSA) mud rotary, air rotary, Rota-sonic, and rock coring. Our experienced field staff and geologists evaluate the data collected from soil borings as part of our hydrogeologic and site characterization. Our work plans use existing geologic and well data and consider the effects of existing soils types, groundwater conditions, depth to bedrock and the anticipated vertical extent of impacts to aid in the selection of proper drilling method(s). Braun Intertec has recently overseen the installation of more than 50 monitoring wells as part of the MPCA Ambient Groundwater Monitoring Network under our current MPCA Level 2 Superfund contract. Soil boring advancement oversight was also included at the City of Fridley Civic Center site and the Union Flats site in St. Paul as detailed in the Remediation Investigation experience in Section 2 above and the Northern Stacks Development in Fridley and the CPS-Fairmont site in Fairmont in the project description in Section 4.

Several Braun Intertec staff are registered with the State of Minnesota as Monitoring Well contractors. They are knowledgeable about requirements of both the MDA and the MPCA, and they stay current with monitoring well technology. Our field crews are highly experienced in installing monitoring wells in accordance with the MDH Well Code, and we sample and measure water levels in hundreds of monitoring wells every year.

Conduct ground water, soil, surface water, sediment, and air sampling and monitoring

Soil, air and water sampling is conducted by our trained staff in our various groups, including our field services and air quality testing groups. We have the necessary equipment for well stabilization and groundwater sampling, air sampling, surface water and sediment sampling, surface soil, and groundwater sampling and soil sampling from borings and push probes. Most of our environmental projects involve some type of soil sampling. Our staff has extensive experience collecting soil samples during site investigations and remedial action implementation. Applicable MPCA/MDA guidance is followed during all soil sampling activities. Soil samples are collected using split spoon methods, conventional drilling techniques, macro-core samplers, hand augers, soil stockpiles, test pits and trenches.

Braun Intertec owns the proper equipment and field staff are experienced in using low flow sampling techniques, as well as many groundwater collection procedures including disposable bottom-filling bailers, dedicated sampling pumps, and low-flow (e.g. Redi-Flow2) submersible pumps with dedicated sampling and tubing. We use our in-house equipment to monitor and record groundwater field parameters including pH, specific conductivity, temperature, redox potential, and dissolved oxygen. We have significant experience collecting surface water samples in support of environmental cleanups and site investigations. Our staff has sampled surface water including lakes, storm water ponds, lagoons, sewage ponds, river, steams, etc. We are experienced with many methods of surface water sample collection and can determine the best sampling approach and methods given the site specific limitations. We have also used many of the common surface water sampling techniques including grab samplers, pumping devices, depth discrete samplers including bottles, dip samplers, Van Dorn bottles, Hydrasleeves, and bomb samplers.

Braun Intertec staff have collected sediment samples for many of our projects including pond sediment sampling in support of disposal or re-use options for dredges material, impacted river sediments, storm water pond sediments, classification of material for municipal ponds, and sampling sewage treatment pond sediment for environmental characterization. Shallow sediment samples are typically collected using hand boring tools, deeper samples may require the use of barges or boats to facilitate using a discrete sampler. The most effective sediment sampling technique is chosen based on the depth and site specific conditions.

Our staff has extensive experience collecting sub-slab vapor samples, soil vapor samples, ambient air samples, and indoor air samples in support of vapor intrusion assessment following MPCA Guidance Document c-rem3-06e *Best Management Practice for Vapor Investigation and Building Mitigation Decisions*. We are experienced in collecting air/vapor samples using several techniques, and installing temporary and permanent sub slab and soil vapor monitoring probes.

Additionally, Braun Intertec staff is experienced in collecting samples to assess the effectiveness of remediation systems including air strippers, SVE systems, and effluent treatment systems. The results of these samples are used to monitor the effluent concentration of these systems and to evaluate the need for additional measures such as activate carbon.

Conduct vapor/air monitoring for health and safety and air quality criteria

Braun Intertec staff conduct vapor/air monitoring at sites using hand held and temporarily installed photoionization detectors, dust meters, organic vapor monitoring, four-gas meters (explosimeters), draeger tubes, methane meters, and flame ionization detectors. We measure air flows and temperatures to evaluate the effectiveness of SVE systems using hot wire anemometers, and magnehelic gauges. Our experience includes collecting vapor/air samples for laboratory analysis to evaluate the effectiveness of SVE systems over time. We have the experience to determine the proper monitoring approach and equipment for each site and perimeter air monitoring for dust and chemicals of concern adjacent to active remediation Sites. For example, remedial construction at the Northern Stacks development (see Section 4 of the proposal) involved demolition and earthwork immediately adjacent to an occupied building. Braun Intertec staff monitored the air for dust and organic vapors with the construction zone for health and safety purposes and along the edge of the construction zone to confirm that the building occupants were not exposed to unacceptable levels of dust and organic vapors.

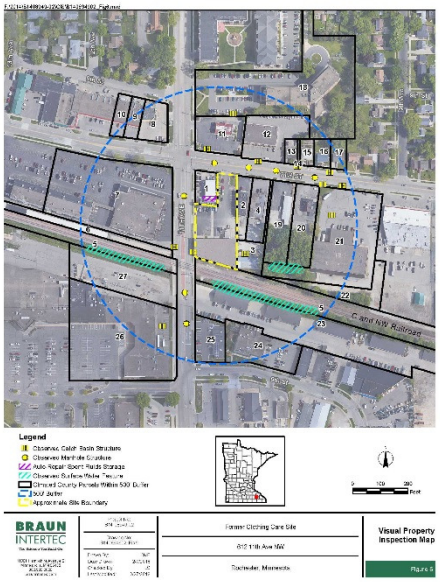
Conduct and/or oversee site assessment activities (Phase I and Phase II), limited site investigations and remedial investigations

Braun Intertec conducts hundreds of Phase I and Phase II ESAs, limited site investigations (LSI), and remedial investigations (RI) each year. Our staff has performed hundreds of site investigations following the MPCA Guidance Document 4-01 *Soil and Groundwater Assessment Performed During Site Investigations*, and are very familiar with the procedures for completing LSIs and RIs.

By objectively and thoroughly conducting Phase I ESAs, we can identify and evaluate the potential or actual environmental hazards associated with a site and make recommendations that address concerns. Based on the information collected in the Phase I ESA, Braun Intertec is able to make recommendations that appropriately address the identified concerns. Our recommendations are pragmatic and balance the needs of the client, the realities of the scientific data collected, the potential legal liabilities related to the site, the costs required to implement the recommendations, and the standard of care expected by the client, our corporation and the industry.

Braun Intertec uses its expertise in evaluating both past property uses and soil and groundwater contamination to design focused investigations. In most instances, a Phase II ESA/LSI/RI will include placing soil borings in areas of suspected contamination, and chemical analysis of soil samples for contaminants of concern. If groundwater is relatively close to the surface or if contamination is known to exist near the water table, groundwater monitoring wells may also be necessary to fully define environmental impacts. Among the resources we rely upon in implementing these investigations are our drilling services, as well as existing relationships with outside laboratories and drilling services. Site assessment activities are a staple of our work; just a few examples of the Phase II and remedial investigations are detailed in the Project Descriptions included in Section 4 of this proposal.

Conduct surface water, ground water, air and vapor receptor surveys



Braun Intertec staff are experienced at conducting receptor surveys and Tier 1 screening assessments including the procedures in MPCA Guidance Document 4-02 – *Potential Receptor Surveys and Risk Evaluation Procedures at Petroleum Release Sites*. These surveys and assessments include walking surveys and identifying water wells, working with city officials to confirm utility construction and connections, drilling borings in utility backfill trenches, vapor monitoring in sewers and basements, collection of water samples from sewer manholes and at treatment plants, and collection of sub-slab soil vapor samples. These activities are required at nearly all of our projects as part of the Risk-Based Site Evaluation process. We use this information, along with current and planned land use information, to inform and frame the investigation and remediation work plans and RAPs that we prepare. For example, as part of a LSI/RI in Pine City under our current MPCA petroleum contract, we recently completed a walking survey for building and water well receptors within 500 feet of the petroleum release, as well as worked with the City of Pine City to identify municipal water wells within a ½ mile of the release and all utility receptors on and adjacent to the Site.

Oversee construction to mitigate vapors and conduct non-construction mitigation measures such as using fans, etc.

We are experienced in overseeing various methods for mitigating vapors, including non-construction mitigation measures (e.g., fans) which are typically used on a temporary basis during underground utility construction or as interim measures prior to installation of a full vapor mitigation systems for existing or future buildings. Our staff is experienced at designing and constructing ventilation systems for both mitigation of vapors associated with impacted soils and groundwater migrating into building spaces and ventilation of other spaces (utility trenches and building interiors) not related to vapor intrusion. For example, Braun Intertec designed vapor mitigation systems for seven large commercial buildings between 150,000 ft^2 and 250,000 ft^2 in size for the Northern Stacks Development (see Section 4 of this proposal), retained a subcontractor to construct six of the mitigation systems, and performed post-construction diagnostic testing to confirm that the systems are operating effectively.

Install stainless steel soil gas sampling ports using an electric drill to bore through floor slabs

Braun Intertec has successfully installed brass or stainless steel soil vapor sampling ports at over 100 sites in Minnesota in just the last couple of years. Braun Intertec staff have been using stainless steel or similar sample ports and hammer drill to collect sub-slab vapor samples for over 10 years. In the last four years Braun Intertec has switched over to using air-tight brass vapor pin systems to collect sub-slab vapor samples. We have installed hundreds of vapor pins at various sites throughout Minnesota. In addition Braun Intertec is performing leak testing using water dams, and performing tightness tests on the sample train of all sub-slab samples performed in Minnesota. For example, under our current MPCA Level 2 Superfund contract, we have installed sub-slab sampling ports in over 35 residential houses and/or commercial buildings as part of an area-wide PCE/TCE plume investigation in Bloomington, Minnesota.

Oversee construction to complete sediment sampling and conduct non-construction sediment sampling, as needed

Braun Intertec staff have collected sediment samples for many of our projects including pond sediment sampling in support of disposal or re-use options for dredges material, impacted river sediments, storm water pond sediments, classification of material for municipal ponds, and sampling sewage treatment pond sediment for environmental characterization. Our staff are familiar with sediment sampling methods and equipment to achieve project objectives. In 2017 alone, we completed municipal pond sediment sampling for the cities of Plymouth, Apple Valley, Chanhassen, Edina, Orono and St. Paul.

Conduct or oversee operation and maintenance on remedial systems

Braun Intertec staff has experience operating and maintaining soil and groundwater remediation systems. Currently, we are maintaining four operating SVE systems, numerous vapor mitigation systems, and two groundwater pump and treat systems. In recent years, we have maintained several other pump and treat groundwater systems, free-product recovery systems, in-situ and ex-situ bioremediation systems, SVE systems, and more. For example, we are currently conducting operation and maintenance activities for an active SVE system operating at a former paint manufacturing facility in Northeast, Minneapolis which involves performing routine site visits and preparation of an annual report.

Our goal is to deliver remediation systems that maximize effectiveness and minimizes operational costs. To that end, we maintain accurate system records, perform routine maintenance, and review operational costs. Braun Intertec routinely reviews monitoring data on an appropriate site specific time interval in order to assess the need for system enhancements to shorten the time the remedial system needs to remain in operation. An important aspect of remedial system operation and maintenance is the ability to troubleshoot systems in order to remediate problems and to reduce down time. Braun Intertec engineers, geologists and field technicians are experienced in system operation and maintenance and are able to quickly determine which system components need rehabilitation, replacement or repair and can get the right parts or contractors to the site and get the system operating again as quickly as possible.

Arrange for transportation, storage, and proper management of wastes

Our project managers are frequently called on to consult and manage the disposal of hazardous materials and wastes of many types. As this issue arises on many of our projects, we are well versed in the proper procedures and waste disposal rules including rules regarding regulated waste and asbestos containing materials. We have experience working with many disposal vendors and can coordinate disposal of hazardous, industrial and solid waste materials. We work with our clients to choose cost-effective disposal options at appropriate permitted facilities. Braun Intertec staff will coordinate sampling, packaging, profiling, transportation and disposal of waste materials from project sites. Our environmental management staff is experienced with RCRA and MNDOT regulations, and can help assure that federal, state and local regulations regarding accumulation, storage and packaging of waste materials are adhered to. As necessary, our staff can obtain EPA identification numbers for sites, or complete hazardous waste management plans required by the appropriate county.

A typical example of this type of work is a former drycleaner site where non-hazardous soil and groundwater waste was generated during installation and sampling of deep monitoring wells. The soil

cuttings and purged groundwater were containerized on Site in drums. Following analytical testing to determine the waste profile and disposal requirements, Braun Intertec coordinate the Site pickup and off-Site disposal of the non-hazardous waste through a disposal contractor.

Evaluate the need for and oversee the implementation of alternative drinking water, including point-of-use treatment (i.e. filtration)

Braun Intertec has the experience and knowledge necessary to evaluate the need for alternative drinking water supplies, from bottled water to site specific point treatment (i.e. carbon filtration), and to then implement an alternative supply source or treatment technology. A complete understanding of the subsurface conditions and the source of water is important to evaluating the need for an alternative drinking water source. Most recently we helped a landowner in southern Minnesota evaluate and replace their private drinking water well due to health risks associated with the original well. Additionally, past projects performed by current Braun Intertec staff included designing and preparing specifications and overseeing the successful installation of granular active carbon systems to treat drinking water for point-of-use treatment.

Evaluate, monitor, design and remediate contaminated sediment and other necessary restorative actions

Braun Intertec has performed sediment evaluations, monitoring design and remediation on many projects across the state including lagoons, ponds, rivers, and lakes. Examples of our sediment work include evaluating and overseeing the dredging and proper disposal of sediment from a portion of Basset Creek, the I35W reconstruction, and the Worth Park wetland restoration. Sediment sampling, monitoring and evaluation for re-use or disposal at dozens of sediment sites throughout the State including recent work for the City of Eden Prairie.

Coordinate remedy planning, restoration planning and end use planning

Our staff's work in contaminated site redevelopment often requires our professionals to incorporate an end use thought process while performing the work. Braun Intertec realizes that the end use of the property is important in designing a proper remedial strategy. This often involves performing a small scale feasibility study to identify the best remedial approach to the site, and developing the plans to implement the remedy. The site remedy must take into consideration restoration of the property in order ensure that the development considers social and economic factors, watershed management, and regional planning. Braun Intertec knows that it is important to see how a site "fits into the bigger picture" of the surrounding area, which is driven by the planned end use of the property. Lastly, Braun Intertec realizes that Brownfield redevelopment must be driven by the desire to restore blighted properties in order to improve the surrounding property.

Practical and well-conceived restoration and end-use planning is incorporated in our work with the Minneapolis Park and Recreation Board (MPRB). For MPRB Sites, Braun Intertec discusses improvement plans for each site with the MPRB and other project stakeholders prior to developing remediation plans. The remediation plans incorporate site-specific requirements and required MPCA required separation distances to ensure no health risks remain but allows continued use as park and recreation space that the communities can safely enjoy.

Search, gather and evaluate bathymetric data

Our staff is experienced collecting bathymetry data including lakes, lagoons and sewage ponds. We have worked with the Minnesota Department of Natural Resource to collect bathymetric and related data at sites in central and western Minnesota.

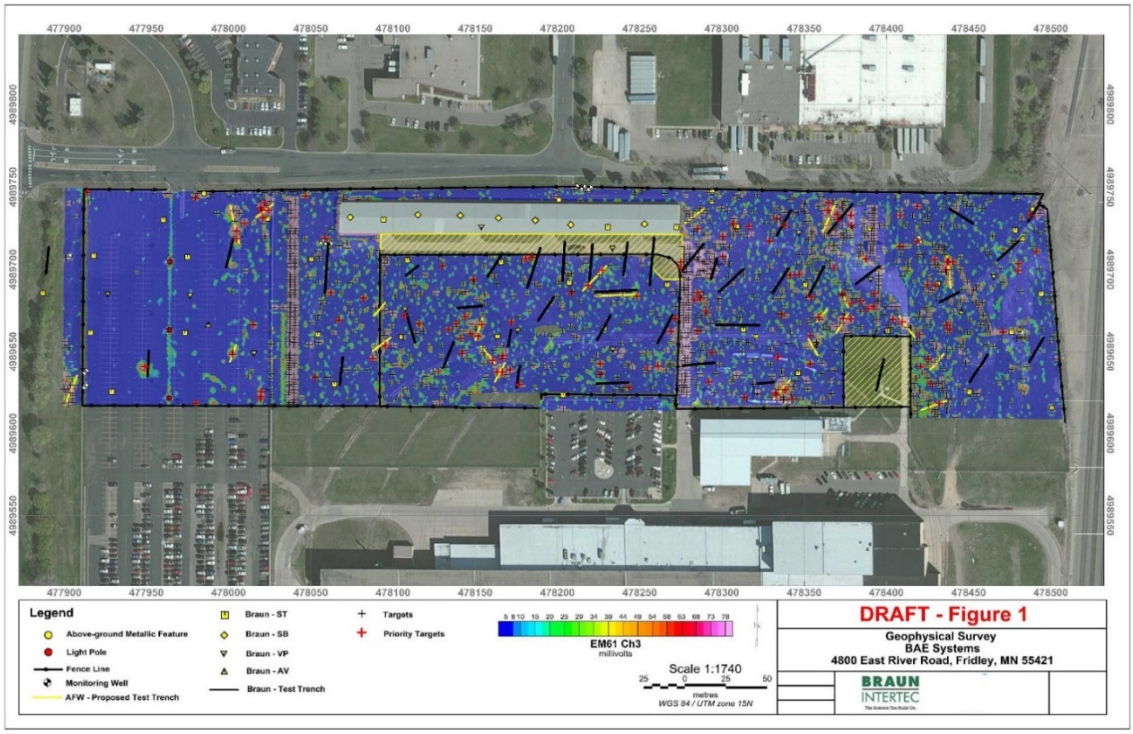
Coordinate and cooperate with other State-contracted services such as sampling and analytical, emergency response contractors, and hazardous waste services

Braun Intertec has good working relationships and experience working with several state contracted services and from our extensive experience working on various state projects including major infrastructure projects for MNDOT and under our current MPCA Superfund contract. We understand that successful environmental remediation requires a team approach and we are dedicated to creating a team approach throughout the contract term.

Braun Intertec has worked with many subcontractors including MPCA/MDA state contractors, analytical laboratories and drilling firms. Under our current MPCA Level 2 Superfund contract, we recently coordinated with a disposal contract working under the Hazardous Waste Management Contract H-69(5) for the future disposal of industrial derived waste (IDW) from soil cuttings during monitoring well installation in Excelsior, MN.

Arrange for geophysical activities

We have expertise applying surface geophysical techniques to provide a cost effective, accurate method of locating buried objects such as tanks and piping. We can apply our in-house geophysical expertise to design and optimizing remedial systems or can oversee other specialized companies performing this work. Our geophysical staff has used many of the most common geophysical field techniques at various sites including GPR, magnetometer, seismic, electromagnetic surveys, and electrical resistivity. We own much of our own geophysical equipment and are proficient in its use and application. Some of our recent geophysical work in support of environmental cleanup included design and arranging for a geophysical magnetic survey of a 22-acre former superfund site in Fridley, MN. The results of the geophysical magnetic survey resulted in the detection and interpretation of metallic utilities, engineered structures, buried metallic debris, and potential uncontrolled fill materials within the surveyed areas. Other recent projects included locating buried foundations at the University of Minnesota, looking for buried wells at a property in Minneapolis, looking for buried un-abandoned large diameter wells for Canadian Pacific, and using GPR to find buried tanks at a site in Brainerd.



Oversee subcontractors and state contractors during investigation and cleanups and tank removals

Braun Intertec is experienced in overseeing subcontractors to ensure the work they perform conforms to the agreed upon scope, schedule, budget as well as state contract requirements. We realize that subcontractors, including drilling contractors, waste hauling contractors, and construction contractors, are all components of the MPCA or MDA project team. Braun Intertec takes a team approach to our environmental projects and cleanup efforts. We realize that timely communication and quick resolution of issues between all team members will provide the most successful project teams. Nearly all of our environmental projects involve multiple contractors, and we are highly experienced operating as the prime or general contractor. In other cases, we are experienced operating as part of a team of subcontractors operating under a prime contractor.

Braun Intertec has overseen both subcontractors and state contractors as part of the MPCA state contract Pine Street Dump project in Hastings. Our worked included completing the subcontractor bidding requirements per the MPCA Purchase Manual and overseeing the selected contractors for test trenches and sub-slab depressurization system (SSDS) system installation (prior to the SSDS state contract). In addition, we have overseen several phases of drilling and soil vapor point installations by a state contract driller and work with the state contract laboratory in every stage of the project.

Prepare and evaluate reports (e.g., investigation reports, monitoring reports, free product recovery reports)

Well written, insightful and accurate reports are a cornerstone of any environmental project. Braun Intertec understands the importance of preparing well written concise reports that are thorough and well-grounded in the available data. Our reports communicate clearly through the use of text, charts, graphs and drawings, along with supporting data (field test information, soil boring logs, laboratory analytical reports, etc.).

In addition, Braun Intertec has a Computer Aided Drafting and Design (CADD) department to perform analysis and engineering drafting and design. Our CADD department consists of Pentium-powered computer workstations using the Windows 2010 operating system, and use AutoCAD Civil3D, ArcGIS, and Microsoft Office. Other geological and hydrogeological software is also used for analysis. Many information sources (survey data, aerial photographs, USGS electronic data, global positioning system (GPS) data, etc.) are used to prepare CAD/GIS-generated maps and vector drawings.

Reviewing and evaluating reports is an essential component of all MPCA and MDA projects, as it is for nearly all of our environmental projects. Braun Intertec evaluates existing reports, providing informed recommendations for potential site activities. All activities directed or overseen by Braun Intertec will be documented in a report to the MPCA or MDA utilizing appropriate guidance documents and forms where applicable. The report format will depend on the type of activity completed. We are experienced with all of the documents and forms that will be needed during implementation of the work included in this proposal.

Evaluate invoices

Braun Intertec has experience managing multiple contractors over a range of complex to relatively simple project tasks. As part of our current MPCA state contract, our project managers review every subcontractor and/or state contractor invoice to ensure that the charges match the bid and/or State Contract Order Form (SCOF) and the scope of work before authorizing payment. We are also experienced in identifying the project scope and working with the MPCA project managers to get an approved change order or signed amendment in place before any out of scope work is performed.

Collect and manage field and laboratory data for electronic submittal in a format specified by the MCPA

Braun Intertec routinely collects data in various electronic data formats for management in environmental databases/platforms (such as EQuIS or ENFOS). We are familiar with planning for such management, which includes using specialized data collection software to capture attribute data, and working with subcontractors to develop project-specific templates for easy importation into the specified database. Braun Intertec recently provided soil gas and temporary groundwater monitoring results to the MPCA through EQuIS for a chlorinated VOC investigation in the Uptown neighborhood of Minneapolis under our current MPCA state contract.

In addition, Braun Intertec is familiar with and has prepared the MPCA Vapor Intrusion map templates using ArcGIS to help determine the next steps of a vapor investigation and/or mitigation. We have experience discussing the maps with MPCA representatives and sending the ArcGIS metadata to the MPCA for their use and files. Recent examples include a former check printing site in St Paul, a dry cleaner site in Richfield and others.

Evaluate data quality and prepare data verification reports

Reviewing analytical data is a key component of most of the environmental projects that we perform. Our staff is experienced in reviewing analytical reports and electronic data deliverables using USEPA guidelines and quality assurance, typically using a level two review. Where detailed data validation is required, we follow the generally-accepted practice of utilizing a third-party data validator. In such cases, we are experienced with reviewing the data validation reports.

Data verification is a process of evaluating the completeness, correctness, and contractual compliance of a data set against the method standard, standard operating procedure, or contract requirements. At Braun Intertec, data verification includes a review of the field data, analytical data, sampling control and custody requirements, and associated quality control data to ensure that results meet project data quality objectives (DQOs). Field data is verified by the Braun Intertec quality manager by reviewing field documentation and chain-of-custody records. Data from direct-reading instruments is used to measure conductivity, dissolved oxygen content, and turbidity is internally verified by reviewing calibration and operating records. The laboratory data is verified with respect to the chain-of-custody, units of measure, and citation of analytical methods. Data verification procedures followed by laboratories include reviewing and documenting sample receipt, sample preparation, sample analysis (including internal QC checks), data reduction, and reporting. Any deviations from the acceptance criteria corrective actions taken, and data determined to be of limited usability (i.e., laboratory-qualified data) is typically noted in the case narrative of the laboratory report. The Braun Intertec quality manager verifies data against the project DQOs. This includes review of internal laboratory quality control samples including calibration, surrogate and laboratory control samples, as well as field quality control samples, sample duplicates and confirmation samples. All analytical data qualifiers are reviewed and their effect on the DQOs is evaluated. Data verification may result in accepted, qualified, or rejected data. A summary of the analytical laboratory data quality in relation to the DQOs is provided as part of the data verification.

Data validation is an analyte and sample specific process that extends the qualification of data beyond method, procedural, or contractual compliance (i.e., data verification) to determine the analytical quality of specific data sets and to evaluate validated data to determine if the data can be used for purpose of the project (i.e., to answer the environmental questions or to make environmental decisions). The Braun Intertec quality manager completes the data validation utilizing the Contract Laboratory Program (CLP) National Functional guidance documents. In order to perform the data validation, the reported data is supported by complete CLP or CLP-like data packages, which include sample receipt and tracking

information, COC records, tabulated data summary forms, and raw analytical data for all field samples, standards, QC checks and QC samples, and all other project-specific documents that are generated.

The results of the data verification/validation will be provided in data validation memoranda that are provided to Braun Intertec's project manager. Data determined to be unusable may require that corrective action be taken. Potential types of corrective action may include re-sampling by the field team or reanalysis of the samples by the laboratory. The corrective actions taken are dependent upon the ability to mobilize the field team and whether the data is critical for the project DQOs to be achieved. If the Braun Intertec quality manager identifies a situation requiring corrective action during data verification/validation, our project manager will be responsible for approving the implementation of the corrective action.

Validation of analytical results against the DQOs of the project adds a layer of quality to the results and understanding of how well the DQOs are being met. Braun Intertec reviews laboratory results for compliance against the DQO criteria for the level of reporting required and verifies the data in respect to the chemicals of concern and citation of analytical methods. Any deviations from the acceptance criteria, corrective actions taken, and data determined to be of limited usability (i.e., laboratory-qualified data) is noted in the validation report. The Braun Intertec quality managers are responsible for:

- Review of analytical data and associated quality control data to ensure that results meet project DQOs.
- Review of internal laboratory quality control samples and field quality control samples, sample duplicates and confirmation samples, review of analytical data qualifiers, and sample control/custody requirements.
- Providing a summary of analytical laboratory data quality.

Arrange for site access

Braun Intertec understands that site investigations often require looking beyond the boundary of the owner's property and that access to off-site properties is essential to many site investigations. Our staff has completed many access agreements for public and private land and is proficient at explaining the scope of work to the land owner, and securing signed access agreements prior to performing work on the properties. We have in-house legal support that provides review of access agreements, as needed.

We have coordinated site access for many sites under our current MPCA state contract; including obtaining access to over 80 residential houses in Lakeland and following access agreement approval, conducted follow-up phone calls and meetings to schedule the sampling.

Coordinate utility locates by contacting the appropriate entity and if applicable coordinate traffic control

We have performed thousands of projects that require proper utility locates and/or traffic control, including many high profile MNDOT projects. Coordinating the location of subsurface utilities is an important component of any subsurface activity. Braun Intertec coordinates with the GOPHER STATE ONE CALL service and private utility locaters to conduct utility locates, meets, and design locates. Braun Intertec has extensive experience acquiring right of way permits, encroachment permits, and construction permits from local unit governments, and has in house traffic control technicians trained to provide traffic control on all types of roadways. We have strong working relationships with many of the municipalities permit divisions and are proficient in getting the proper permits to perform traffic control.

Prepare and evaluate bid specifications

Braun Intertec prepares bid specifications on many of our environmental projects including Brownfield redevelopment, building demolition, and remediation implementation. Bid specifications are also prepared for a variety of activities including drilling, demolition, hazardous material abatement, remedial system construction, building construction, and treatment system installation. Our staff has significant experience evaluating complex bid packages and weighing technical ability and cost to select the most appropriate contractor for the project. We have developed company and project specific specification sections that help keep bid specification preparation costs to a minimum. For example, at the Northern Stacks site, which is detailed in the Project Descriptions in Section 4, Braun Intertec has prepared bid specifications for demolition and soil correction work, and selected cost-effective and qualified subcontractors for work totaling more than $10 million dollars.

Conduct and review human health and/or ecological risk assessments

Braun Intertec has completed risk assessments throughout the United States for a variety of sites, ranging from petroleum service stations to Superfund sites. Our risk assessment staff includes a toxicologist, certified industrial hygienists, contaminant transport modelers, environmental scientists and ecologists that have diverse scientific and regulatory experience and expertise. Our staff has been involved in risk assessments for both government agencies and private sector clients.

We take a site-specific approach for exposure assessments, emphasizing realistic pathways and exposure scenarios. The results are used to determine the need for remedial action; identify sources, pathways and contaminants of concern; document risk magnitude; and establish cleanup goals to protect human health and the environment.

Project examples include an ecological risk assessment for former ExxonMobil refinery site, evaluated indoor air vapor intrusion pathway risks for a former Northrop Grumman machine shop, performed baseline human health risk assessment for Palmer Barge Line Federal Superfund site following EPA RAGS protocol including interaction with PRP group and EPA/TCEQ reviewers, performed ecological impacts of logging on forest plant diversity on an Indian Reservation, performed an ecological impact assessment of an oil spill in a river and associated floodplain and others.

Prepare and review Quality Assurance Project Plans (QAPP) and Sampling and Analysis Plan (SAP) in accordance with state and federal requirements

We have prepared SAPs, Field Sampling Plans (FSPs) and QAPPs for our Superfund, VIC, petroleum and RCRA corrective action projects. Our staff has developed SAPS and QAPPs for a variety of clients including private organizations and railroads, using various forms including MPCA and US EPA templates. Braun Intertec has a current EPA Approved QAPP for projects performed with the MPCA under the Minnesota Targeted Brownfields Assistance Program (MNTBAP), as well as recently preparing the EPA approved QAPP for the former NIROP superfund site in Fridley, MN. Other QAPPs prepared by current Braun Intertec include a 10-acre redevelopment in Brooklyn Center under the VIC program, and QAPP for the Central corridor work, the I35W reconstruction, and the CCLRT line.

Perform feasibility and treatability studies

Feasibility Studies, remedial investigations and treatability studies are often performed concurrently. The objective of a feasibility study is to evaluate the potential remediation technologies and solutions to support an informed decision regarding which remedy appears to be most appropriate for a given site. Braun Intertec staff has the experience and knows the advantages and disadvantages of many remediation systems and approaches. This experience allows our staff to perform educated feasibility studies in order to determine which remedial approach or system will provide the most efficient and cost effective approach to site remediation. Section 121(b) of CERCLA mandates EPA to select remedies that "utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable" and to preferentially select remedial actions in which treatment "permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances, pollutants, and contaminants is a principal element". Treatability studies allow our staff to collect data that is used to support remedy selection and implementation. Treatability studies are often performed as soon as it becomes evident that data gaps exist in the available information such that the existing information is insufficient to ensure the quality of the decision.

Our staff has conducted several large and small scale treatability and feasibility studies, providing us the opportunity to utilize our experience and knowledge to select the appropriate approach for site-specific remediation. We have recently completed feasibility/treatability studies for a RCRA site impacted with chlorinated solvents at a site in Fridley, MN. The results of the study resulted in source soil removal and ex-site treatment for onsite reuse of the treated soils. Additional feasibility studies performed by current Braun Intertec employees included a former metallurgical facility to determine the most effective remedial approach. This analysis led to the installation and operation of a SVE system at the site. We also recently performed a treatability study to stabilize lead impacts at a former gun range to determine the appropriate soil loading in order to stabilize the lead impacts on site, greatly reducing the costs to the project (versus off-site disposal), while providing long-term protection for human health and the environment.

Design comprehensive remedial actions and remedial systems

We are experienced at developing comprehensive remedial action plans, many of which require preparation of design specifications throughout Minnesota and adjacent States. For example, the Northern Stacks project description included in Section 4 of this proposal describes a multi-year project where Braun Intertec developed six separate RAPs over a period of 4 years that involved geotechnical soil correction to support new office/warehouse buildings, off-site disposal of impacted soil, consolidation of impacted soil on-site with construction of clean buffer zone soils and utility corridors, construction of vapor mitigation systems, and in-situ oxidation of TCE-Impacted soil.

Conduct and oversee remedial investigation

Braun Intertec conducts hundreds of Phase I and Phase II ESAs, limited site investigations (LSI), and remedial investigations (RI) each year. Our staff has performed hundreds of site investigations following the MPCA Guidance Document 4-01 *Soil and Groundwater Assessment Performed During Site Investigations*, and are very familiar with the procedures of LSIs and RIs.

By objectively and thoroughly conducting Phase I ESAs, we can identify and evaluate the potential or actual environmental hazards associated with a site and make recommendations that address concerns. Based on the information collected in the Phase I ESA, Braun Intertec is able to make recommendations that appropriately address the identified concerns. Our recommendations are intentionally pragmatic and balance the needs of the client, the realities of the scientific data collected, the potential legal liabilities related to the site, the costs required to implement the recommendations, and the standard of care expected by the client, our corporation and the industry.

Braun Intertec uses its expertise in evaluating both past property uses and soil and groundwater contamination to design focused investigations. In most instances, a Phase II ESA/LSI/RI will include placing soil borings in areas of suspected contamination, and chemical analysis of soil samples. If groundwater is relatively close to the surface or if contamination is known to exist near the water table, groundwater monitoring wells may also be necessary to fully define environmental impacts. Among the resources we rely upon in implementing these investigations are our relationships with outside laboratories and drilling services.

Oversee installation of remedial actions and remedial systems

Braun Intertec staff has overseen remedial actions completed at hundreds of sites, including dozens of remediation systems. Our experience is detailed at the Northern Stacks site with the installation of multiple soil vapor mitigation systems and soil corrections at Union Flats site (see Section 4 and Section 2, respectively, for additional project details). Our staff is well trained and communicates the project schedule and milestones effectively. Our extensive experience with subcontractors provides us with the ability to select the proper subcontractor for the project and effectively oversee and document the installation of the remedial system or remedy.

Conduct surface water, groundwater and hydrodynamic modeling

Braun Intertec staff is well versed in modeling groundwater and surface water interactions. Our staff uses MODFLO, multilayer analytic element model (MLAEM), and AQTESOLV software to design remedial systems and to investigate groundwater and surface water interactions.

Recent projects include the following:

- Braun Intertec staff constructed a conceptual and mathematic model of the interaction between groundwater flow and a stream and lake system. Data was used to show the fate and transport of impacts, and determine the proper pumping rate and placement of drain tile and sumps used as part of the remedial plan.

- Braun Intertec staff completed single well hydraulic conductivity tests to determine aquifer parameters used for the completion of a mathematical model to predict groundwater flow characteristics from Laddie Lake to the site in Spring Lake, MN.

Perform asbestos identification and if necessary, oversee asbestos abatement and removal

We help public and private building owners, school districts, property managers, architects, developers, attorneys and lending institutions develop programs to effectively manage asbestos. Our clients receive cost-effective consultation to achieve compliance with asbestos-related regulations issued by the US EPA, OSHA, and state and local agencies. We have guided our clients through regulatory requirements since 1981. We can provide:

- **Asbestos management:** to help clients find a feasible and affordable program to solve their asbestos issues.
- **Building inspections:** *accredited* and licensed asbestos inspectors will conduct extensive surveys by collecting, documenting and analyzing samples.
- **Asbestos removal projects:** our certified industrial hygienist will help design and oversee the removal and provide on-site monitoring.

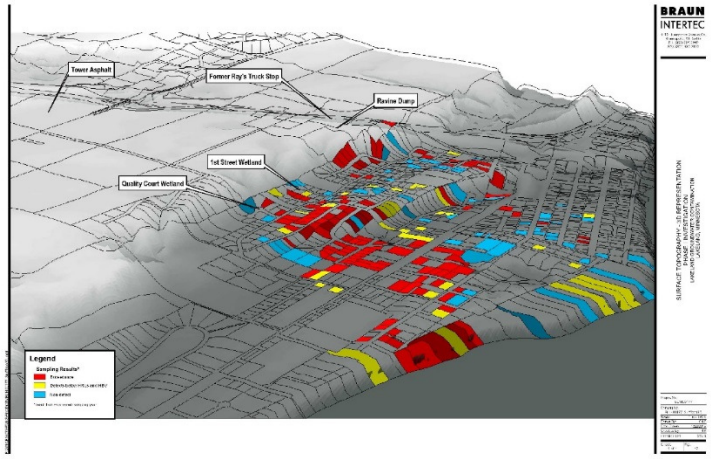
Braun Intertec conducts hazardous building material assessments of buildings to identify potentially hazardous building materials that may impact building occupancy and/or that require separate handling and/or disposal prior to building renovation/demolition. Assessments are conducted by our experienced and accredited asbestos inspectors. Our services include:

- Visually examining accessible areas and identifying the locations of suspect asbestos-containing material (ACM), lead, poly-chlorinated biphenyls (PCB), mercury, and other miscellaneous hazardous building materials.
- Collecting and analyzing representative bulk samples of materials suspected of containing asbestos.
- Conducting lead-based paint testing of deteriorated painted surfaces suspected of containing lead. The testing typically is accomplished using a Niton X-ray fluorescence (XRF) spectrum analyzer.
- Documenting the various materials' current conditions.
- Generating final reports documenting the sample locations, analysis results, conditions, and recommendations.
- Preparing engineer’s estimates of the probable costs for the removal and disposal of identified hazardous building materials.

We have also provided asbestos abatement monitoring on behalf of clients at various sites throughout the country. In both removal projects and operation and maintenance programs, Braun Intertec can monitor and document abatement activities on a daily or periodic basis. This often includes collection and analysis of air and bulk samples. We do not perform removal or maintenance work; therefore, have no bias or conflict of interest in recommending asbestos management measures. Braun Intertec recently performed a hazardous building assessment, and then oversaw the abatement of large quantities of asbestos and other hazardous building materials, including performing air monitoring, during the abatement for a former apartment building in Minneapolis. Braun Intertec provided asbestos and lead-based paint assessment services of a historic former manufacturing building in south Minneapolis planned for multi-family affordable housing. Following the assessment work, Braun Intertec worked with the project design team to develop an asbestos abatement and lead-based paint removal scope to facilitate the historic rehabilitation of the structure. Finally, we provided abatement turnkey services and conducted project oversight and documentation to confirm that the abatement work was completed successfully.

Conduct third party review and analysis of technical information for the purpose of providing conclusions and recommendations to the State

Braun Intertec senior project managers and engineers have provided clients, including the USAF 934th Airlift Wing, with third party reviews and assessments of studies and projects. Organizations many times do not have the in-house expertise or time to review technical documents. Braun Intertec professional geologists, hydrogeologists, engineers, industrial hygienists and scientists routinely provide technical reviews of documents and environmental assessments, and provide additional recommendations as requested.



A recent example included performing a detailed analysis and provided recommendations to the MPCA for the groundwater contamination site in Lakeland Minnesota. The work included reviewing over 20 years of environmental reports, hundreds of well logs, years of private well sampling data, multiple geologic study's, topography data, and other technical information in order to identify potential source areas of the groundwater contaminants, evaluate the potential for plume migration, and identifying high risk drinking water receptors. The results of the third party review resulted in a detailed report, prepared by Braun Intertec. The report included a detailed surficial and bedrock geology summary of the Site including the potential for unanticipated migration of the chlorinated solvents in the groundwater plume due to previously unidentified preferential flow paths along the complex bedrock topography beneath the site. The report identified multiple potential source areas, and identified 80 private drinking water wells that were at high risk for trichloroethene impacts in the vicinity of the plume. This review was used to develop sampling plans to further evaluate the identified at risk well receptors and the previously unidentified potential source areas.

Provide support for the analysis and development of program policy and guidance, including developing health or ecological risk criteria/standards (including technical report preparation)

Risk assessment provides an evaluation of the potential adverse health effects, current or future, caused by hazardous substance release. The level of risk involved directly correlates to the degree of exposure and relative toxicity of a substance. Therefore, determining the existence and magnitude of an exposure, as well as the relative toxicity of the hazardous substance, are necessary steps in the assessment of risk.

The Braun Intertec team includes an experienced toxicologist and ecologist who have experience developing site specific standards and preparing the associated technical reports. Recently we developed site-specific human health and ecological actions levels including consideration of air dispersion to offsite receptors and integration of OSHA levels for protection of on-site workers and monitoring program development for a refinery site. The process for developing site-specific standards is similar to, and can be implemented on a larger scale to, develop program standards.

Perform five year reviews and site reviews

Our staff has the technical background and experience to perform five-year reviews and site reviews. We have working experience with the US EPA comprehensive five-year review guidance for conducting five-year reviews under CERCLA. Recently, we completed the five year review report for a federally-listed NPL site in Mankato under our current MPCA contract. In addition, we have reviewed five-year reports on behalf of our clients and are familiar with their content, format, and technical depth. These reports are similar to those we prepare for clients interested in reviewing and reevaluating ongoing remediation and monitoring efforts.

Prepare draft decision documents and other documents such as grant applications, draft institutional controls, and permit applications

We understand that projects require the preparation of many types of documents including decision documents, grant applications, institutional control documents, permit applications and fact sheets. Braun Intertec staff has completed many projects that required these and other similar types of documents. We have successfully prepared grant applications for brownfield funding for dozens of sites in the last five years. For example, Braun Intertec recently prepared grant applications and managed grant disbursement requests for new car dealership site in St. Louis Park. In addition, we prepared a draft environmental covenant for the property for review by the MPCA and filing with Hennepin County. Our staff has the detailed knowledge and technical writing abilities to prepare these documents for the MPCA/MDA.

Perform operation and maintenance system review and optimization

Several of our sites have operating remedial or mitigation systems, or have historically had these systems. Braun Intertec staff conducts various reviews of the operational efficiently in order to optimize the system performance and shorten the length of time the system needs to be operated in order to reach the project goals. We have also reviewed existing systems installed by others to determine if the remedial system is operating effectively to address the project goals.

Our goal is to keep each remediation system operating in a manner that maximizes the system's effectiveness and minimizes operational costs. To that end, we maintain accurate system records, perform routine maintenance, and review operational costs. Braun Intertec routinely reviews monitoring data on an appropriate time interval in order to assess the need for system enhancements and shorten the time the remedial system needs to remain in operation.

For example, Braun Intertec evaluated an existing pump and treat system for a confidential client. Based on our evaluation and capture zone analysis, the system was enhanced with added groundwater extraction wells and vacuum enhanced groundwater withdrawal to increase the area of influence of the extraction wells. Currently Braun, Intertec staff are maintaining several operating SVE system, including monitoring system operating parameters and containment mass removal rates and totals.

Research, evaluate and implement innovative technologies

Braun Intertec strives to be at the forefront of innovative technologies, our knowledgeable staff are encouraged to research new approaches and emerging technologies. We frequently attend training seminars and industry conferences in order to learn about new technologies and innovative techniques that we can implement at our project sites. Braun Intertec staff has the experience and technical capability to research, evaluate, select and implement innovative technologies where appropriate. A recent example is evaluation of potential remediation technologies to address 780 cubic yards of TCE impacted soil in

Fridley, Minnesota for which ex-situ chemical oxidation was recommended and successfully implemented by a sub-contractor accordance with design specification prepared by Braun Intertec.

Braun Intertec offers Unmanned Aerial Systems (UAS; i.e. drone) services as an innovative technology to assist projects in a variety of ways; including aerial photography, real-time building inspections, thermal imagery, and surface topography. We recently used UAS technology to accurately and efficiently measure the size and volume of a large soil stockpile to assist in determining disposal options and costs.

Prepare presentations and present information at meetings

Braun Intertec takes a team approach to our projects, meaning that almost all of our projects require frequent meetings with clients, regulators, public entities, the general public, subcontractors, developers and other involved parties. Our staff's experience with environmental remediation, consulting and regulatory guidance provides our personnel with the knowledge and expertise needed to conduct meetings and to present technical information in a clear and understandable manner. Our in-house marketing and communications group are experts at presentation design and work closely with our project managers and technical staff to prepare various types of presentations. We have a fully staffed AutoCAD and GIS department that can create graphics, figures, charts and maps that allow us to present information in a manner that is memorable and instructive. We have extensive expertise communicating our knowledge, both general and project specific, to our network of private and public clients.

Recent examples included preparing and presenting several presentations to the Citizen Advisory Group for Fridley-Area Polluted Sites, presentations to the City of Fridley City Council, and preparing and presenting technical presentation to MNDOT on vapor intrusion investigation/mitigation. Multiple Braun Intertec staff have presented technical presentations at recent technical conferences including the Minnesota Brownfields series of vapor intrusion forums, and others.

Over the past ten years, Braun Intertec has served the role as Environmental Compliance Officer (ECO) for contractors on MnDOT Design-Build and Construction Manager/General Contractor (CMGC) projects. As the ECO, one of our tasks is to prepare and present various training materials including spill prevention, cultural resource, stormwater protection, natural resources, wetland, and asbestos awareness training. Recent examples include the I35W Bridge reconstruction, where Braun Intertec provided weekly on-site training and guidance documents for several months to more than 1,000 workers. We recently provided similar training for the 169/494 Interchange, Hastings Bridge, Winona (Dresbach Bridge), and St. Paul High Bridge (TH 149) projects.

Oversee Stormwater Program requirements during construction activities

Braun Intertec has abundant and recent experience in design and inspection of construction storm water Best Management Practices (BMPs) required by federal and state SWPPP rules. By objectively evaluating a construction site's potential to shed sediments and other contaminants to surface water during and after construction, we can identify and design cost-effective BMPs that will address regulatory requirements. We have certified staff with the experience to perform the weekly inspections and reporting required under SWPPP rules. For example, Braun Intertec was hired to be the SWPPP Inspector for construction of the Southwest Christian High School in Chaska. Braun Intertec staff were responsible for SWPPP implementation during construction as well as performing required weekly inspections.

Provide technical assistance to the State in the evaluation and interpretation of data and information

Braun Intertec staff has a wide range of experience and knowledge that allow us the ability to efficiently interpret data and information and to make site specific conclusions and recommendations. Staff have used their experiences to interpret data and information on all of our projects.

A recent example included performing a detailed analysis and provided recommendations to the MPCA for the groundwater contamination site in Lakeland Minnesota. The work included reviewing over 20 years of environmental reports, hundreds of well logs, years of private well sampling data, multiple geologic study's, topography data, and other technical information in order to identify potential source areas of the groundwater contaminants, evaluate the potential for plume migration, and identifying high risk drinking water receptors. The results of the third party review resulted in a detailed report, prepared by Braun Intertec. The report included a detailed surficial and bedrock geology summary of the Site including the potential for unanticipated migration of the chlorinated solvents in the groundwater plume due to previously unidentified preferential flow paths along the complex bedrock topography beneath the site. The report identified multiple potential source areas, and identified 80 private drinking water wells that were at high risk for trichloroethene impacts in the vicinity of the plume. This review was used to develop sampling plans to further evaluate the identified at risk well receptors and the previously unidentified potential source areas.

Oversee or conduct bench scale lab treatability studies, pilot testing and field demos

Typically, a technology must be pilot tested in the field under actual site conditions to determine the feasibility and to measure specific design parameters required for the design of a full scale remedial system. Braun Intertec staff is experienced in conducting and overseeing bench scale studies and pilot test/field demos for many different remedial technologies.

Braun Intertec recently completed a bench scale study for the treatment of chlorinated solvent impacted source soils at the BAE RCRA site in Fridley, MN. The bench scale study was used to design an ex-situ treatment to reduce chemical concentrations in the source soils to allow onsite reuse of the soils (see the project example in Section 4 of this proposal for more details).

Assist and provide training as requested by the MPCA or MDA. Training must be related to the scope of this contract.

Our staff's experience with environmental remediation, consulting and regulatory guidance provides our personnel with knowledge and expertise needed to provide training to the MPCA or the MDA. We have extensive expertise communicating our knowledge, both general and project specific, to our network of private and public clients. Recent training seminars prepared and provided by current Braun Intertec staff include vapor intrusion presentations to MNDOT staff, various groups of environmental attorneys,

presentations to various trade groups, and national conferences. In addition Braun Intertec currently has an ongoing monthly webinar series that presents a range of training topics. Recent topics include vapor intrusion and mitigation, wetland delineation, innovative use of unmanned aerial vehicles and others. Braun Intertec have use our experience trainers, presentations and technology to provide training requested by the MPCA and MDA.

Over the past ten years, Braun Intertec has served the role as Environmental Compliance Officer (ECO) for contractors on MnDOT Design-Build and Construction Manager/General Contractor (CMGC) projects. As the ECO, one of our tasks is to prepare and present various training materials including spill prevention, cultural resource, stormwater protection, natural resources, wetland, and asbestos awareness training. Recent examples include the I35W Bridge reconstruction, where Braun Intertec provided weekly on-site training and guidance documents for several months to more than 1,000 workers. We recently provided similar training for the 169/494 Interchange, Hastings Bridge, Winona (Dresbach Bridge), and St. Paul High Bridge (TH 149) projects.

Follow MPCA Green practices/procedures for remediation projects

Braun Intertec is familiar with the MPCA green practices/procedures for remediation projects, including the emphasis on using recycled content products, such as those listed on the EPA comprehensive procurement guidelines and the MPCA recycled product directory. We use environmentally preferred and locally sourced purchasing when applicable. Braun Intertec is familiar with the Waste Wise and Energy Smart Programs and is in the process of applying the recommendations.

Braun Intertec has qualified environmental professionals at our offices located throughout the State of Minnesota and neighboring states. This geographic coverage allows us to reduce mobilization distances and allows us to have good relationships with local contractors, which reduces travel distances to sites.

Oversee hydrogeologic investigations including fate & transport modeling, capture zone analysis and pump tests

Braun Intertec staff has experience performing detailed hydrogeologic investigations and data analysis, including groundwater flow and contaminant fate and transport modeling, capture zone analysis, aquifer pumping test design and analysis, slug test design and analysis and specific capacity testing and analysis. Our Staff uses MODFLO, multilayer analytic element model (MLAEM), and AQTESOLV software to design remedial systems and to investigate groundwater and surface water interactions.

Recent projects include the following:

- Braun Intertec staff conducted a pump test and completed a mathematical model to determine the number, depths, and pumping rates of extraction wells used to mitigate the accumulation of water within the building elevator sum at a site in Wayzata, MN.

- Braun Intertec staff conducted a series of aquifer (pump) tests adjacent to the South Fork of the Zumbro River. The test results were used for completion of a mathematical model to evaluate

the hydrogeologic characteristics of the unconsolidated aquifer materials under consideration for the construction of features necessary for a sanitary sewer relief project in Rochester, MN.

Prepare and determine if the Stormwater Pollution Prevention Plan (SWPPP) is being followed and make recommendations if revisions are needed during the life of the construction project

The National Pollutant Discharge Elimination System (NPDES) is a comprehensive national program for addressing stormwater runoff. The program was mandated by Congress under the Clean Water Act. NPDES requires that a permit be obtained to discharge storm water prior to beginning any construction activities whenever one or more acres of land are disturbed. Development of a SWPPP is a prerequisite for submitting the permit application. To remain in compliance with federal, state and local regulations, site inspections by a qualified person must occur every seven days and within 24 hours of every ½ inch rainfall event throughout the life of construction activities. SWPPPs are required by federal and state rules. Braun Intertec engineers routinely prepare stormwater plans to address stormwater quantity and quality. When working on contaminated sites it is especially critical to look at the potential for sediment and other contaminants that can be moved within or away from the site.

Braun Intertec SWPPP development includes:

- Researching applicable municipal, watershed district/watershed management organization and local government storm water rules.
- Evaluating the need for additional permits.
- Identifying special or impaired waters or other protected resources that might be impacted by the construction runoff.
- Evaluating additional requirements for discharge.
- Preparing the SWPPP in accordance with MPCA rules, required project information, descriptions, calculations and necessary figures, details and maps.
- Conducting storm water pollution prevention training.
- Inspections completed by trained Braun Intertec professionals that are certified through the University of Minnesota Erosion and Sediment Control Program.

The benefits of a well-written SWPPP will:

- Help maintain compliance with applicable rules and regulations, reducing the potential for construction delays and/or costly fines for noncompliance of applicable rules.
- Facilitate communication between developers, contractors and project owners

Our certified staff provides support, knowledge and experience necessary to develop SWPPPs, file necessary permit applications and inspect the site in accordance with federal, state and local ordinances.

Project examples include:

- Braun Intertec was hired by Mortenson Construction to manage the SWPPP for construction of the Minnesota Vikings football stadium, the US Bank Stadium. Braun Intertec staff was responsible for SWPPP implementation during the initial phases of construction, oversight of the required inspections, and responding to changes in construction and/or preparing revisions to SWPPP as necessary.
- Braun Intertec was hired by Flatiron-Manson Joint Venture, MN, to act as the SWPPP Stormwater Manager for St. Anthony Falls (35W) bridge reconstruction project in Minneapolis during major earth-moving operations. Braun Intertec staff was responsible for SWPPP planning and implementation during construction, as well as performing the required weekly inspections.

4. Project Descriptions

FORMER NIROP SUPERFUND SITE/NORTHERN STACKS DEVELOPMENT (VIC SITE)/BAE RCRA SITE

Hazardous Waste Site

PROJECT LOCATION
Fridley, Minnesota

PROJECT DATES
August 2012 to est.
December 2018

OWNER
Fridley Land LLC
Mr. Paul Hyde
1350 Lagoon Ave #920
MPLS, MN 55408
(612) 904-1513
paul@hyde-dev.com

CLIENT
Same as Owner

Services Provided: Phase I ESAs; tank removal oversite and sampling; Remedial Investigations; hazardous materials building surveys; hazardous materials abatement specification preparation, hazardous materials abatement specification oversight; demolition specification preparation; in-situ soil treatment, four RAPs; RAP implementation oversight; impacted soil and debris excavation oversight and off-site disposal, confirmation sampling; groundwater investigation; monitoring well installation and sampling, sampling and administration; reporting.

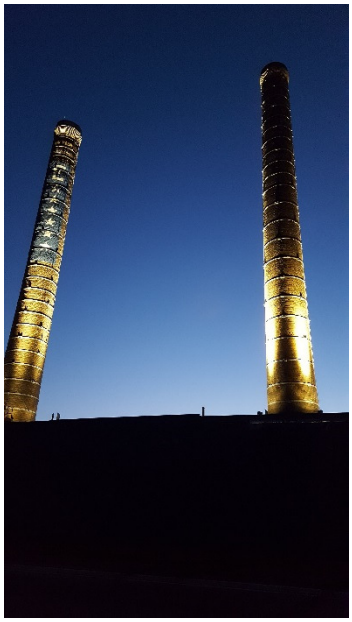
Subcontractor Services: analytical testing, ex-situ chemical oxidation chemical supplier and application, soil excavation, and transportation services.

Project Description:
Fridley Land LLC (Client) is redeveloping portions of the former Naval Industrial Reserve Ordnance Plant (NIROP)/BAE Systems Site located at 4800 East River Road in Fridley. The redevelopment, commonly known as the Northern Stacks project, is being performed by Fridley Land LLC under the guidance of the Minnesota Pollution Control Agency (MPCA) Voluntary Investigation and Cleanup (VIC) Program to address environmental impacts at the Site. Separate from the VIC Program, BAE Systems Land & Armaments L.P. (BAE Systems), formerly United Defense L.P., entered into a Corrective Action Agreement (CAA) on March 24, 2003 with the MPCA, requiring investigation and possible cleanup of source areas associated with Resource Conservation and Recovery Act (RCRA) Solid Waste Management Units (SWMUs) and Areas of Concern on what was then known as the Armament Systems Division Plant.

Northern Stacks Development

This 122-acre former Superfund site is currently the second largest redevelopment project in Minnesota's history next to the Mall of America site. Northern Stacks was once home to NIROP, a gun turret producer that opened during World War II and employed more than 12,000 people at its peak.

Solvents, paints and other hazardous chemicals, and various petroleum products were used during the 70 years of production. Large quantities of chlorinated solvents, metals, fuels, paints, and other chemicals were discharged to below-ground features including dry wells, sumps, pits, trenches, storm sewers and sanitary sewers on the property. There were dozens of underground and above ground storage tanks across the site, many that leaked.



Braun Intertec reviewed the available historic information, and performed multiple remedial investigations at the Site to investigate the various areas of concern. These remedial investigations including the use of soil borings, temporary and permanent monitoring wells, test trenches, soil vapor sampling, sub-sab vapor sampling, geophysical surveys, and aerial surveys using unmanned aerial vehicles (drones).

The results of the remedial investigations identified and delineated the extents of onsite impacts from various chemicals of concern. The results of the remedial investigations were used to design response actions for the Site in support of the redevelopment. The remedial actions included design and installation of multiple soil vapor mitigation or soil vapor exchange systems, soil correction, in-situ chemical treatment, capping, excavation and on-site management, excavation and off-site disposal, storm water pond lining, and institutional controls. The MPCA approved response actions were successfully implemented to address the impacts towards receiving certificates of completion for the Site.

BAE RCRA Site

The BAE RCRA Site Area of Contamination (AOC) (also known as the former Paint Shop), has been the subject of a number of RCRA Corrective Action Site Evaluations, Facility Investigations (soil and groundwater remedial investigations), a Corrective Measures Study, on-going groundwater monitoring efforts, and most recently "source soil" delineation in the vadose zone. The BAE RCRA site is located within the larger former NIROP Site included in the Norther Stacks Development.

BAE Systems operated a paint shop that consisted of a paint booth, machining area, and former paint storage dry well along the eastern side of the then main manufacturing building. The former Paint Shop was identified as a likely source area for groundwater contamination due to elevated levels of groundwater impacts (primarily chlorinated VOCs) that were consistent with historical chemical usage in the former Paint Shop. Braun Intertec completed an investigation of the BAE RCRA Site source soils in August 2015. Braun Intertec performed what was essentially a focused feasibility study for the source soils on behalf of BAE Systems and determined that ex situ soil treatment was the preferred treatment method. A bench-scale study to identify the preferred treatment chemistry for chemical oxidation of chlorinated VOCs in source soils. A total of 780 cubic yards of source soils were excavated and an in situ amendment was applied to the base of the excavation. The excavation was then backfilled with clean fill soils sourced from clean onsite native sands. These native sands were mixed with selected amendment (enhanced bioremediation) was applied directly to the amended portion of the excavation to promote enhanced bioremediation of the residual impacts to groundwater in the source area.

Based on bench scale testing of source soils, ex situ chemical oxidation was selected as the remedial method to reduce TCE concentrations in the removed source soils. Once the treatment chemistry was applied, bioavailable media (BAM) was evenly applied to the source soils and mixed using an excavator. Treatment efficiency and verification samples were then collected from each batch. Based on the results, treatment of the source soils was determined to be effective at reducing TCE concentrations below site-specific SLV standards for reuse on the project. The treated soils were then reused on Site.

Challenges/Solutions: The Site is very large and included multiple areas of concern and various contaminants including VOCs, PAHs, various metals, PCBs, pesticides, cyanide, petroleum, as well as large areas of buried debris including buried drums, solid waste and construction materials. The work required coordinating with the MPCA and the US EPA. Other challenges included working around and in coordinating with the demolition of various structures including demolishing portions of the main building while portions remained occupied, implemented multiple remedial approaches include soil vapor mitigation, in-situ soil treatment, calculating site specific soil leaching values for onsite reuse of certain materials, and coordinating the work with the construction of the new Northern Stacks development. Solutions included preforming multiple phases of investigations at the various area of concern, using personal with experience with large brownfields developments and various contaminant types, and working in close coordinate with the Client, the construction manager for the development, and the soils work contractor to assure a successful implementation of the various response actions, building demolition and soil correction. The large scope and time requirements required constant commination and multiple site meetings to ensure a successful project.

Key Personnel: Mark Keefer, PG – Project Manager, Senior Geologist, Christopher Thompson, PE – Principal In charge, Key Field Personnel – Travis Pennings, PE, Cole Erickson, PE, Steve Norris, and Timothy Molitor.

CPS – FAIRMONT

Agricultural Chemical Investigation

PROJECT LOCATION
Fairmont, Minnesota

PROJECT DATES
09/2016 to 03/2018

CLIENT/OWNER
Crop Production Services, Inc.
Mike Tonne
2445 50th Street
Fairmont, Minnesota
507.236.2879
mike.tonne@cpsagu.com

Services Provided: Braun Intertec conducted environmental assessment activities at the Site in association with the construction of a concrete loading pad. The assessment included multiple rounds of subsurface investigations to identify and delineate the extent of soil impacts.

Subcontractor Services: analytical testing

Braun Intertec developed a Remedial Investigation and Corrective Action Plan (RI/CAP) to document the completed assessment activities and to provide a plan for remediation and management of the agricultural chemical impacted soil. Following excavation and stockpiling of approximately 150 cubic yards of contaminated soil, Braun Intertec sampled the stockpiled soils for disposal characterization purposes.

Braun Intertec assisted the Client/Owner with obtaining reimbursement of investigation costs through the Agricultural Chemical Response and Reimbursement Account.

Project Description: The Site is approximately 5-acres in size and is located in a rural area approximately 6.5 miles southeast of the City of Fairmont, Minnesota.
The Site is used for storage, distribution and sale of agricultural chemicals and nutrients (including anhydrous ammonia), and includes dry fertilizer storage, seed building, crop protection package storage, and bulk liquid fertilizer and chemical storage tanks within secondary containment. A small quantity of petroleum is also stored on-site for vehicle re-fueling.

The client planned to construct an approximately 5,500 square foot concrete load/drive pad adjacent to the exterior chemical and liquid fertilizer tank secondary containment dike. Per Minnesota Department of Agriculture (MDA) guidance, soil sampling was required within the proposed concrete pad area in advance of construction.

In coordination with MDA staff, Braun Intertec conducted the initial investigation within the construction area. Based on identified nitrate and herbicide concentrations greater than MDA cleanup goals, two additional phases of sampling were conducted to delineate the identified impacts.

The contaminated soil was excavated and is currently stockpiled and awaiting disposal via land farming under the oversight of the AgVIC Program.

Challenges/Solutions: The soil in the load pad area consisted of hard packed Class V followed by tight clay, which made it difficult to collect soil samples. The samples were obtained by using a hand-auger to collect the soil sample from the targeted 6-inch sampling interval. To assist with collection of deeper samples, a skid-steer-mounted auger attachment was used to advance the soil borings to the desired sampling depth before using the hand-auger.

Key Personnel: Project Manager – Imants Pone; Principal – Scott Beadleston; Key Field Personnel – Alex Boecher

ELITE CLEANERS

Vapor Mitigation Site

PROJECT LOCATION
Minneapolis, Minnesota

PROJECT DATES
September 2016 - Present

OWNER
Darlene Chapman
4075 Woodhill Drive
Loretto, Minnesota
763-479-2850
Dlchapman43@gmail.com

CLIENT
Same as Owner

Services Provided: Enrollment in MPCA VIC Program; MPCA-approved Work Plan; sub-slab vapor investigations; RAP and RAP Addenda preparation; vapor mitigation system installation specifications and oversight at residential properties; post-mitigation confirmation sampling; Property Summary Report (PSR) preparation; dry cleaner fund reimbursement application.

Subcontractor Services: Analytical testing and Vapor Mitigation System Installation.

Project Description: The Site is located at the southeast corner of Minnehaha Avenue and East 31st Street in the City of Minneapolis, Hennepin County. The Site is a 0.2-acre developed parcel with one commercial building currently used as a dry cleaning and laundering service and associated paved parking and drive areas. The Site and building have been operated as a dry cleaning and laundry business from 1957 until present.

In preparation for a road improvement project along County State Aid Highway (CSAH) 48/Minnehaha Avenue, Hennepin County conducted several environmental investigations between 2010 and 2016. These investigations included: a Phase I ESA completed in December 2010, a Phase II Investigation completed in December 2014 as part of a larger CCP report, and supplemental soil and soil vapor investigation completed in May 2016. In general, tetrachloroethene (also referred to as perchloroethene or PCE) was detected in the soil, groundwater and soil vapors in the vicinity of the Site. Additional investigation to define the extent and magnitude of PCE contamination was required.

In October 2016, on behalf of our client, a potential responsible party (RP), Braun Intertec enrolled the Site in the MPCA Voluntary Investigation and Cleanup (VIC) Program. A Work Plan and Work Plan Addendum 1 were prepared detailing the proposed investigation related to the PCE; specifically sub-slab vapor sampling in nearby residential properties followed by soil and groundwater investigations; The Work Plan and Work Plan Addendum 1 were approved by the MPCA.

In late 2016 and early 2017, Braun Intertec contacted the adjacent residential property owners to discuss vapor intrusion and obtain access to sample the sub-slab soil vapors on their property. Sub-slab sampling points were installed through the basement floor slab in four residential properties and sub-slab soil vapor samples were collected per the MPCA-approved Work Plan and in accordance with MPCA guidance. Elevated PCE was detected in the sub-slab vapors in three of the four residential houses. Based on those results, vapor mitigation systems were required in three houses. Braun Intertec prepared a RAP and two RAP Addenda detailing the vapor mitigation system installation at the required residential properties.

Braun Intertec hired a vapor mitigation contractor to install the vapor mitigation systems in the three residential properties, and provided oversight to make sure the installation was done in accordance with the MPCA guidance documents. Following vapor mitigation system installation, Braun Intertec completed post-construction confirmation sampling; which included collecting concurrent sub-slab, indoor air and ambient outside samples, and conducting follow-up pressure field extension (PFE) diagnostic testing. Property Summary Reports for each property are pending.

As detailed in the original Work Plan, additional investigation is planned for the Site; specifically additional sub-slab soil vapor sampling of the Site building and adjacent properties; additional vapor mitigation, as necessary; and a subsurface investigation including soil borings and soil vapor probes to determine the extent and magnitude of soil, groundwater and soil vapor impacts related to the PCE release.

Challenges/Solutions: Obtaining access to sample soil vapors at off-site residential properties has been a challenge. Braun Intertec continues to reach out to the off-site property owners to explain the why and how of the sampling. In addition, Braun Intertec is working with the City of Minneapolis Healthy Homes team to obtain access; utilizing their resources and multi-language interpreters.

Key Personnel: Project Manager – Becca Primus; Principal – Steve Jansen; Senior Engineer – Bruce Schaepe; Key Field Personnel – Rich Fons, and Tom Einberger

5. Scenario A

The Scenario A: Remedial Investigation Work Plan and Cost Estimate are included as **Attachment A** in the prescribed MPCA format.

The Scenario A: Remedial Design/Remedial Action Work Plan and Cost Estimate are included as **Attachment B** in the prescribed MPCA format.

Appendix 1
Resumes

BRAUN INTERTEC

The Science You Build On.

STEPHEN T. JANSEN, MS, PG

Principal Scientist

EDUCATION

B.A., Geology, 1983,
College of St. Thomas, St. Paul, MN

M.S., Geology, 1987,
Idaho State University, Pocatello ID

PROFESSIONAL REGISTRATIONS

Professional Geologist
MN No. 30527

Professioinal Geologist
WI No. 525-13

CERTIFICATIONS

40-Hour HAZWOPER Certification (29CFR 1910.120) and annual refresher training

PROFESSIONAL AFFILIATIONS

Minnesota Ground Water Association
Minnesota Brownfields Advisory Committee

Mr. Jansen is a principal scientist at Braun Intertec and is responsible for project management, technical review/support and staff management. Steve specializes in design and implementation of voluntary investigations and cleanups for redevelopment, as well as cleanup grant application preparation and grant management. He also has expert witness experience related to property condemnation.

PROJECT EXPERIENCE

- *Lite Yard Site/Hiawatha Business Center, Minneapolis, MN** — Project manager for the 2004-2005 response action implementation of the CMC Heartland Partners Lite Yard State Superfund Site located at East 28th Street and Hiawatha Avenue (Highway 55) in Minneapolis. The former railroad maintenance yard was listed on the State Permanent List of Priorities (PLP) due to extensive soil and groundwater contamination from arsenic- and lead-related to arsenical-based pesticide manufacturing operations. Petroleum contamination from two former bulk storage facilities was also present at the site. The Minnesota Department of Agriculture (MDA) was the lead regulatory agency as the primary releases at the site were from agricultural chemicals. Investigative work was completed from 1995 through 2003 and included extensive on-site and off-site investigation to define the extent of soil and groundwater contamination, computer-aided groundwater and fate/transport modeling, health-based risk assessment to support establishment of site-specific cleanup goals, and preparation of a Response Action Plan (RAP) and related cleanup plans/specifications and bidding documents. The RAP was approved by the MDA and Minnesota Pollution Control Agency (MPCA) and implemented in October 2004. Response actions included excavation, chemical stabilization (as required), and off-site disposal of approximately 80,000 tons of arsenic- and lead-contaminated soil as industrial waste and daily cover at a local permitted facility. The RAP implementation report was issued in July 2005 and an affidavit was prepared to address management of residual soil and groundwater contamination. In late 2005-2006, the site was redeveloped for commercial office/warehouse use. Also managed the redevelopment-related cleanup activities. Long-term post-cleanup groundwater monitoring is currently being conducted using a network of 18 monitoring wells located on and off-site.
- *Elmer L. Andersen Library, Minneapolis, MN** — Project manager responsible for evaluating and mitigating coal tar-contaminated groundwater that was impacting the Elmer L. Andersen Library (Minnesota Library Access Center or MLAC). The project included a preconstruction Phase II investigation to quantify soil and groundwater contamination and to evaluate its potential impacts on the proposed construction design. A contingency plan was prepared

**While employed by another firm.*

and implemented to address contamination as part of construction. Contingency plan implementation included environmental monitoring, design and installation of engineering controls, disposal of contaminated soil and rock, and collection and treatment of contaminated groundwater. Additional measures implemented following construction have included design and installation of a 460-foot long horizontal interceptor well system up gradient of the facility. The well system was designed to collect, remove, and treat contaminated groundwater before it enters into the underground portion of the facility. The horizontal interceptor well project received a Grand Award in the 2003 Engineering Excellence competition sponsored by the American Council of Engineering Companies of Minnesota. The project was also recognized in the National Engineering Excellence competition as one of the nation's 24 most significant engineering achievements of 2002. As part of the project, also provided extensive technical support to the University's legal team for settlement negotiations, cost recovery and potential litigation.

- *UMore Park Property/Former Gopher Ordnance Works (GOW), Rosemount, MN** — Project manager for a concrete and soil assessment conducted in fall of 2006 at the UMore Park Property, which is approximately 5,000 acres in size and located in Rosemount, Minnesota. The property was previously occupied by the majority of the former GOW facility. The GOW facility was constructed by the Federal Government in the early 1940s, and was designed to manufacture nitrocellulose (smokeless gunpowder). A concrete and soil assessment was conducted concurrently with planning studies to determine possible property development scenarios. The concrete and soil assessment evaluated 51 representative existing buildings and building slabs/foundations (concrete remnants) to determine the potential for reuse of the large quantities of concrete remnants present on the property. The project, which was completed in a compressed six-week timeframe, included collection of approximately 150 concrete cores, completion of 72 test trenches to evaluate footing depths/construction and soil quality, and analytical testing of more than 300 concrete and soil samples. Volume estimates were prepared for all concrete remnants present at the property, and mitigation strategies were developed to address asbestos and hazardous materials impacts, and disposal/reuse options for the concrete remnants were developed.

- *Phase I and Phase II Environmental Assessments Portfolio, 33 Apartment Complexes located throughout the Midwest** — Project manager for comprehensive Phase I Environmental Site Assessments (ESA) of 33 apartment complexes conducted for a nationwide property management firm. The assessments were prepared in accordance with both ASTM and Fannie Mae guidelines and were completed within a 45-day timeframe. Additional investigation was performed at six sites, either in the form of Phase II investigation or additional historical research on a rush basis to facilitate the property transactions. The buyer and their lender used the environmental assessment results to successfully complete all of the property transactions.

**While employed by another firm.*

- *Phase I and Phase II ESAs, Apartment Complex on Former Dump Site, Minneapolis, MN** — Project manager for a comprehensive environmental assessment of an apartment complex site completed for a prospective buyer. The Phase I identified that the apartments were built on a former unpermitted dump. A former underground fuel oil storage tank was also identified. The site was entered into the MPCA Voluntary Investigation and Cleanup (VIC) program to obtain liability assurances. A Phase II investigation was conducted to characterize the nature and extent of the dump materials present. The Phase II results were utilized to obtain a "No Association" determination from the MPCA for identified contamination, which allowed the buyer to obtain financing and purchase the site.

MARK D. KEEFER, PG

Associate Principal -Senior Geologist

EDUCATION

B.S., Environmental Geology & Technology
University of North Dakota

M.S., Hydrogeology
University of North Dakota

PROFESSIONAL REGISTRATIONS

Professional Geologist (PG)
MN No. 47350

CERTIFICATIONS

40-hour HAZWOPER -Certification and annual refresher training- OSHA 29 CFR 1910.120

OSHA Site Supervisor Training

E-Railsafe Certified

PROFESSIONAL AFFILIATIONS

American Institute of Professional Geologist

Minnesota Groundwater Association

National Groundwater Association

Toastmasters International, Competent Communicator – Awarded 2016

Mr. Keefer has worked as a hydrogeologist in the environmental field since 2003, providing professional consulting service to private clients and state agencies. Mark's project experience includes large-scale project management; site characterization and corrective action; Brownfield redevelopment; and remediation system design, implementation and maintenance.

Mark has a diverse background which includes due diligence and site characterization of facilities throughout the United States involved in various market sectors, and as the program director for a consulting services contract the with the Minnesota Pollution Control Agency (MPCA). His past experience gives him a unique skill-set as well as client-focused relationships and he has additional proficiency in technical writing and group management.

Specific project responsibilities include:

- Developing and implementing investigation work plans, sampling and analysis plans (SAPs), Response Action Plans (RAPs), quality assurance project plans (QAPPs), and construction contingency plans.
- Construction oversight including remediation systems and institution controls.
- Communicating with regulatory personnel and enrolling sites in Minnesota's Petroleum Brownfields and Voluntary Investigation and Cleanup Programs.
- Managing clients, developing and administering project budgets.
- Writing proposals and final reports, supervising field implementation and providing senior report review.
- Performing Phase I ESAs in accordance with American Society for Testing and Materials (ASTM) Standard for Commercial Real Estate Transactions, Practice No. E-1527.
- Providing technical quality control review of reports.

SELECT PROJECT EXPERIENCE INCLUDES:

- *Environmental Consulting Contract with the MPCA, Various Sites, MN* — Program director/project manager for the Level I/II Environmental Consulting Contract with the MPCA. Responsibilities included managing the contract with the agency and facilitating and overseeing several staff to perform the investigation, reporting and response action implementation at various sites throughout Minnesota.

<u>Select Due Diligence Projects</u>

- ***Phase I Investigation,*** Westminster Presbyterian Church, *1221 LLC, Minneapolis, MN.* (BIC Project # B1511540) Geologist/Project Manager for the Phase I investigation of over 100 year old Church in downtown Minneapolis.
- **Phase I Investigation,** 400 71st Avenue Northeast, 6911 University Avenue Northeast, 7011 University Avenue Northeast, Fridley, Minnesota, City of Fridley,

Minnesota. (BIC Project # B1509930). Geologist/Project Manager for the Phase I ESA of a City Public Works facility.

- **Phase I and II Environmental Site Assessments, Railroad Corridors, Multiple States**. Geologist for the Phase I/II ESAs of active railroad corridors in several states as part of an acquisition in South Dakota (Three sites), and Iowa (Two Sites). Work included performing Phase I and Phase II environmental site assessments at each facility Included reviewing current and past operations consisting of various railroad operations and leased properties with various tenants. Phase II work including drilling along active railroad tracks and in maintenance yards. Work was performed for a Railroad client following various client specific requirements for access, and health and safety.
- **Phase I and II Environmental Site Assessments, and Limited Compliance Audits (13 sites),** Wilbur Ellis Corporation, Agricultural Distribution Facilities, Multiple States — South Dakota (Three sites), Nebraska (one site), Kansas (seven sites), and Texas (two sites). Geologist for the Phase I/II ESAs of agricultural distribution facilities in several states as part of several acquisitions. Performed Phase I and Phase II environmental site assessments, and a limited compliance audit in regards to environmental compliance and health and safety procedures at several facilities that perform aerial/ground application of agricultural chemicals, and distribution of agricultural chemicals and petroleum products. Facilities included chemical manufacturing, warehouses, airports, distribution and related facilities. The work was performed on a very tight timetable and in adverse weather conditions.
- ***Brownfield Investigation and Response Acton Plan Implementation,*** *City of Fridley Civic Center, Fridley, MN* —Senior geologist and project manager for a 30 acre redevelopment of a former ice arena, firefighting training and public works facility. The work included multiple investigations including Phase I ESAs, Phase II ESA, Limited Site Investigations, remedial investigations, soil vapor investigations and hydrogeological investigations. The remedial actions performed included leaking underground tank removals, soil removal and off-site disposal, building abatement and demolition, soil and soil vapor remedial action implementation and ongoing groundwater investigation of impacts. The site impacts included petroleum VOCs, PAHs, Metals and perfluorocarbon (PFCs).

- ***Brownfield Investigation and Response Acton Plan Implementation,*** *10-Acre Brownfield Redevelopment Site, Brooklyn Center, MN* — Geologist/Project Manager for the characterization and remedial action development and implementation for the redevelopment of a 10-acre Brownfield site impacted with PAHs, asbestos and metals. Work involved asbestos removal and disposal, geotechnical and environmental soil correction, extensive dewatering, soil disposal, site grading and coordination with the building contractor. The work also involved coordinating and overseeing the work of multiple contractors, and coordinating with the MPCA, The City of Brooklyn Center, and the Minnesota Department of Transportation. Fill soils ranging from 2 to 33 feet in thickness

covered most of the site, with samples showing both carcinogenic and non-carcinogenic PAHs. Petroleum was also detected in samples. Many problematic materials were faced during remediation, including 77 previously unknown buried steel and concrete piles, brick fragments, concrete slabs, bituminous fragments, chucks of tar, sewer tile, geotextile fabric, unknown rubber materials, Styrofoam, and metal. Along with 65,000 cubic yards of contaminated fill soil, which was found to be below the groundwater table by as much as 20 feet, six former tennis courts painted entirely with products containing asbestos were excavated from the site.

- *RCRA Hazardous Waste Site, Warroad, MN* — Project geologist for the excavation, over-packing, removal and transportation for disposal of multiple buried drums containing chlorinated solvents. Direct work included overseeing and directing test trench excavations based on geophysical survey results to find buried drums; directing precision excavation and the removal of buried drums and impacted soil; performing in-field screening to separate impacted soil from clean soil in order to reduce the cost of disposal., assisting in and directing the over packing of drums for transport to a disposal facility; responsible for maintaining the exclusion zone, mentioning air quality, and ensuring proper de-contamination of the workers in the exclusion zone.
- *Wood Treatment Facility, AGVIC Site Investigation and Clean Up, Lester Prairie, MN* — Project geologist for the site characterization and investigation and remedial response planning and implementation of remedial actions for soil and groundwater impacted with organic hydrocarbons at a former wood treatment facility. The site was entered into the Minnesota Department of Agriculture VIC (Voluntary Investigation and Cleanup) program. Direct work includes performing site investigative activities, overseeing the excavation, classification, segregation and stockpiling of over 3,700 tons of contaminated soils, overseeing the chemical treatment of over 650 tons of impacted soils with iron activated Fenton's Solution and alkali activated sodium persulfate, overseeing the backfilling and compaction of soils into the excavations and paving of the backfilled excavations, and confirmation sampling of the treated soils.
- *Soil Vapor Intrusion Study, Multiple Locations, MN* —Minnesota Pollution Control Agency (MPCA), Geologist/Project Manager Responsible for the investigation of soil vapors at eighteen sites in Minnesota. Work has included the preparation of site sampling plans for all sites; collecting soil vapor samples using summa canisters; reporting the results, and project management. Direct work also included overseeing and performing the contract related procedures and documentation for the client.
- *Brownfield/AGVIC Site Investigation, UAP, Brooklyn Center, MN* — Soil and Groundwater Investigation, Hydrogeologist for the remedial investigation of soil and groundwater impacted with pesticides, petroleum products, metals, chlorinated hydrocarbons, and PAHs. The Site is entered into the Minnesota Department of Agriculture (MDA) and the MPCA voluntary clean up programs.

**While employed by another firm.*

Direct work includes: extensive research into pesticides, preparation of site investigation workplan, performance of preliminary site investigation consisting of test trench testing and logging, preparation of preliminary investigation report.

- Soil, soil vapor and Groundwater Investigation and Response Action Plan, Universal Plating, Minneapolis, MN. — Geologist/Project Manager for the Investigation of a former plating facility. Responsible for the project management, preparing the sampling and analysis plan for the Phase II investigation, performing the investigation and preparing the remedial action plan. The phase II investigation included soil borings, test trenches, soil vapour probes, and temporary groundwater wells. The results of the Phase II Investigation identified impacts to soil from metals, TCE and PCE, and impacts to soil vapor and groundwater from TCE. The Phase II investigation results were used to prepare a response action plan to deal with the identified impacts during re-development of the site into an athletic field.

- *Limited Site Investigation, Eveleth, MN* — Geologist/Project Manager for a limited site investigation under the Minnesota Petroleum Remediation Program. Work included receptor surveys, risk assessment, soil, groundwater and vapor sampling and reporting at a former snowmobile manufacturing facility.
Limited Site Investigation, Minnesota Pollution Control Agency, Winthrop, MN. —. Geologist/Project Manager for a limited site investigation under the Minnesota Petroleum Remediation Program. Work included receptor surveys, risk assessment, soil, groundwater and vapor sampling and reporting at a former gas station.

- Humboldt Industrial Park Redevelopment, Real Estate Recycling, Minneapolis, MN. — Geologist/Project Manager for the redevelopment of an undeveloped site impacted with hydrocarbons, metals, and pesticides. The site neighbors a former pesticide facility and a former wood treatment facility and was used by the City of Minneapolis as a site to deposit street sweepings. Direct work included historical review and site remedial investigative activities, analyzing data, and preparing work plans, reports, and subcontractor contracts.

- Underground Storage Tank Investigation and Removal, Medtronic, Inc. Brooklyn Center, MN. — Staff hydrogeologist for the investigation and removal of an underground storage tank (UST). Direct work included Geoprobe soil sampling around the tank, collecting soil samples for analysis, coordinating subcontractors, and overseeing the excavation and removal of the UST.

- ***Building Demolition, Minneapolis, MN.*** Geologist/Project Manager for the investigation, demolition and grading of a former apartment building. Direct work included preparing the demolition technical specifications to solicit bids, selecting

and contract with various contractors, overseeing the abatement of the hazardous building material including asbestos and lead, coordinating and overseeing the demolition of the former apartment building, directing and overseeing the removal of a 3,000 gallon fuel oil UST, performing a excavation to remove petroleum impacted soils, debris soil removal, and site backfilling with clean imported soils.

- ***Underground Storage Tank Investigation and Removal,*** *Medtronic, Inc. Brooklyn Center, MN.* (GMX Project # 12346.000.0) Staff hydrogeologist for the investigation and removal of an underground storage tank (UST). Work included site investigation, and overseeing the proper removal and disposal of an UST.
- ***Underground Storage Tank Investigation and Removal, Apartment Building, Minneapolis, MN,*** directed and oversaw the proper removal and disposal of a 5,000 gallon fuel oil tank in an apartment building during demolition.
- ***Underground Storage Tank Investigation and Removal, Mound, MN,*** directed and oversaw the proper removal and disposal of a 20,000 gallon fuel oil tank at a School in accordance with MPCA rules.

STEVE NORRIS

Senior Environmental Scientist

EDUCATION

B.S., Chemistry & Criminology,
Florida State University

CERTIFICATIONS & TRAINING

Certified Safety Professional® (CSP), #32376

OSHA 40-Hour HAZWOPER, 8-Hour Refresher, 30-Hour Construction, and Site Supervisor

EPA Emergency Response Training: Level A, Radiation, mobile/in-situ chemical analysis, Geoprobe®, Incident Command System

EPA CERCLA Hazard Ranking System

IANTD Dive Master/Science Diver

CPR & First Aid

Minnesota Stormwater Management & Erosion Control Site Manager

Mr. Norris is a Senior Environmental Scientist within the Minneapolis, Minnesota office consulting on a variety of environmental-related projects. From site investigation to redevelopment and compliance matters, Mr. Norris works with a variety of clients to solve environmental issues. Drawing upon his experience as an EPA Superfund Technical Assessment and Emergency Response Team (START) contractor, his project experience ranges from investigating chlorinated contaminants in soil vapor across urban area to remediating impacted soils as part of a RCRA-listed sites, routinely bringing together diverse stakeholders to accomplish project objectives. Mr. Norris also serves as a safety and quality lead within Braun Intertec preparing and/or reviewing health and safety plans, job hazard assessments, laboratory data quality reviews, and quality assurance planning documents.

AREAS OF EMPHASIS

- CERCLA Site Assessments (Voluntary and Fund-Financed)
- Due Diligence & Brownfields Redevelopment
- Environmental Chemistry/Quality Assurance
- Project Management

SITE ASSESSMENT & REMEDIAL PROJECT EXPERIENCE

- *BAE Systems RCRA Site, Fridley, MN* — Technical Project Manager for source removal and ex-situ treatment of approximately 1,200 cubic yards of TCE-impacted soil at the current Naval Industrial Reserve Ordinance Plant (NIROP) Superfund site. The project involved installation of sheet piling with helical tiebacks for 90 linear feet of shoring wall for the adjacent BNSF rail yard, excavating source soils at depths between 12 and 25 feet, segregating overburden material for reuse, placing oxygen-reducing bioremediation amendment to surficial water, and compacting backfill material in accordance with project specifications. Source soils were stockpiled and treated using chemical oxidation by modified Fenton's reagent. Mr. Norris directed all project activities, including preparation of an MPCA-approved RCRA Corrective Measures Work Plan, all subcontracting for project execution, quality assurance testing, health and safety oversight, and approval of the Corrective Measures Implementation report in support of delisting of the site.
- *Former Pine City Mill, Pine City, MN* — Project Manager for the project using MPCA TBAP funding. Mr. Norris completed Phase I and II ESAs. Upon completion of the reports, a stakeholder meeting was initiated by Mr. Norris to determine redevelopment potential and address data gaps. A subsequent LSI was initiated by the MPCA PBP, as well as performing additional investigation of agricultural contamination in conjunction with the MN Department of Agriculture. In total, five rounds of investigation were completed by EPA and MPCA, largely coordinated by Mr. Norris.

- *Three Agricultural Facilities, Confidential Client, Illinois* — Project Manager and risk assessor for evaluating potential exposure pathways as a result of long-term operation of retail agricultural facilities under an Illinois EPA Consent Order. As part of the three projects, Mr. Norris prepared Remedial Objective Reports, performed site-specific contaminant fate and transport calculations, Remedial Action Plans, and communicated with legal counsel/Illinois Attorney Generals office to implement various engineering and institutional controls as required by Illinois EPA's TACO program.
- *LeHillier/Mankato Superfund Site, Mankato, MN* — Project Manager and principal author for the fifth Five Year Review (FYR) report of the federally-listed NPL site. An important factor in the success of the project was managing both the expectations of the State of Minnesota, with those of the lead agency, the EPA.
- *Hampton Main Street Vapor Intrusion Site, Hampton, MN* — Project Manager for the site assessment of a chlorinated solvent plume originating from an unknown source. The project involved assisting the MPCA with coordination of residential home testing, performing indoor air and groundwater/sump sampling, and a summary report with recommendations for future actions.
- *Uptown Midway Greenway (Gerard Avenue) Soil Vapor Investigation, Minneapolis, MN* — Project Manager charged with site assessment activities related to identifying chlorinated solvents in soil vapor throughout a residential corridor in Minneapolis. The project involved completing soil vapor probes and installing temporary deep groundwater monitoring wells within city right-of-way.
- *National Guard Bureau, Fargo, ND** — Project Manager for the continued long-term remediation of a chlorinated solvent and co-mingled petroleum plumes on an active Air National Guard installation. Project activities include continued site monitoring, monitoring well installation, and bio-substrate injection in support of the site's ROD.
- *Sheridan Post & Pole: Bioremediation, Sheridan, WY** — Field chemist responsible for routine assessment of soils undergoing bioremediation at the former Sheridan Post & Pole site for PCP. Mr. Norris was charged with monitoring soil conditions and modifying application rates to promote a sustainable environment.
- *Farmington Vapor Intrusion Site, Farmington, MN** — Project Manager for the site reassessment of a chlorinated solvent plume originating from a neighborhood drycleaner. The project involved canvassing residential and commercial buildings within the plume boundaries and performing sub-slab soil-gas and indoor air sampling in conjunction with the EPA Emergency Response Team.
- *Solberg-Haegele Site, Clearwater, MN** — At the request of EPA, Mr. Norris reviewed site documents provided by MPCA related to a municipal property acquisition which was formerly used as a tank salvage yard. A removal action summary document of all site information, including potential receptors,

volume calculations, and removal action justification in accordance with the NCP, was submitted to EPA's legal counsel and subsequently used as the basis for a time-critical removal action.

- *Helena Solvent Site, Helena, MT** — Project Manager for the site reassessment for an unidentified source PCE plume in the heart of Helena, Montana. The project involved thorough review and compilation of environmental reports spanning more than 20 years for HRS applicability. Mr. Norris worked directly with Montana DEQ representatives so that all resources were researched and summarized prior to presenting two HRS preliminary scores to the EPA for potential NPL inclusion.
- *Box Elder Gasoline Discharge, Havre, MT** — Project Manager for an EPA emergency response on Tribal land related to an active retail station with gasoline day lighting in potable water sources. Activities included managing all aspects related to scheduling, health and safety, drilling, reporting, documentation, and performing impact assessments for excavation of contaminated soils as part of a time-critical removal action.
- *Rogers Limited Petroleum Site Investigation (LSI), Rogers, MN** — Project Manager tasked with completing a LSI on behalf of large retail service station client as required by the MPCA.
- *St. Cloud Merrill Building, St. Cloud, MN* — Project Manager working with a private investment group for purchase of a 100,000-square foot building. The project initially involved completing Phase I and II ESAs. Upon discovery of chlorinated solvents in soil vapor beneath the building and petroleum hydrocarbons in groundwater, additional sub-slab vapor and groundwater investigations were performed. With additional investigation data, the Site was enrolled in the MPCA's voluntary programs to obtain liability assurance letters.
- *Fruen Mill, Minneapolis, MN* — Project Manager for obtaining EPA grant funding to assess the former Glenwood Mill, historically used for water bottling, screw manufacturing, and grain storage. Project activities included completing an eligibility determination, Phase I ESA, QAPP, SAP, and a Phase II ESA consisting of soil, groundwater, soil vapor, and wipe sampling, as well as a hazardous materials assessment.

QUALITY ASSURANCE/QUALITY CONTROL EXPERIENCE

- *EPA Superfund Technical Assessment and Response Team (START) IV QMP/QAPP* — Uniform Federal Policy QAPP and QMP preparation.
- *KDHE Module A & B Contract* — QAPP preparation and lead quality reviewer.
- *Third-Party Data Validator** — Third-party data validator for the Hudson River PCBs Superfund Site.
- *Mobile HapSite Operator* — Method selection and operation for mobile GC/MS.

**While employed by another firm.*

IMANTS PONE

Senior Scientist

EDUCATION

B.S., Natural Resources and Environmental Studies, University of Minnesota, Twin Cities

CERTIFICATIONS

OSHA 40-Hour Hazardous Waste Operations Certification (29 CFR 1910.120) and annual refresher training

Mr. Pone has more than 18 years of diverse experience in environmental engineering and consulting services for a wide variety of clients, including City, County, and State entities. Imants specializes in comprehensive project management of soil, groundwater, and soil vapor investigations, remedial action plan design and implementation, and regulatory permitting and compliance.

Imants has managed or participated in a wide variety of environmental site assessments and remediation projects in several states. His experience includes properties impacted by petroleum products, agricultural chemicals, and hazardous substances. He has been involved in the geological aspects of projects, the performance of risk evaluations, and the design and implementation of various soil and groundwater remediation solutions, including product recovery programs and in-situ bioremediation.

PROJECT EXPERIENCE

- *Area-Wide Contamination Study, Bloomington, MN* —Environmental project manager for an area-wide study of chlorinated solvent contamination. The project initially involved a comprehensive desktop review of potential contaminant sources and previous environmental work conducted in the study area. The next phase of work included collecting groundwater and soil gas samples to assess the extent and magnitude of contamination. Several soil gas "hot spots" were identified and additional soil gas assessment was conducted to evaluate the risk of vapor intrusion into nearby occupied structures. Residences overlying high soil gas concentrations were targeted for sub-slab depressurization system (SSDS) installation. He was involved in soliciting bids and selecting a vapor mitigation contractor to perform the SSDS installations under the MPCA State Contract. He also oversaw the system installations and pre- and post-mitigation diagnostic testing.
- *Construction-Related Assessment and Remediation, Agricultural Retail Distributor, Fairmont, MN* — Project Manager for environmental assessment and remediation activities associated with a proposed capital improvement project at an active agricultural nutrient/chemical facility. Several rounds of sampling were necessary to delineate identified nutrient and chemical impacts, resulting in approximately 150 cubic yards of impacted soil being excavated and replaced with clean backfill. The documentation prepared for the assessment and remediation activities were approved by the Minnesota Department of Agriculture.
- *Redevelopment Project, Minneapolis, MN* —Environmental project manager for a high-rise apartment project in downtown Minneapolis which included excavation of the entire site to accommodate underground parking. This area of downtown had been developed for over a hundred years and contained 7 to 15 feet of contaminated urban fill materials, including hazardous levels of lead and mercury, and asbestos containing materials associated with the former site

structures. Management plans were developed for all of the contaminants. Response actions included excavation, chemical stabilization, and off-site disposal of more than 31,000 tons of contaminated soil as industrial waste at local permitted facilities. The response actions were completed to the satisfaction of the Minnesota Pollution Control Agency (MPCA), which issued various liability assurances to the project developers.

- *Former Dry Cleaner, Hopkins, MN* —Environmental project manager for a subsurface assessment prior to the sale of the property. The assessment identified volatile organic compounds in soil gas under the property. He prepared a Response Action Plan (RAP) which included installation of a sub-slab vapor mitigation system, implemented the proposed response actions, and helped the owner and prospective buyer obtain liability assurances which allowed the sale of the property to go through as planned.
- *Washburn Center for Children, Minneapolis, MN* —Environmental project manager for a Brownfields redevelopment project for which he helped obtain more than $400,000 in environmental investigation and cleanup grants. The project included a preconstruction Phase II investigation to quantify soil and groundwater contamination and to evaluate its potential impacts on the proposed construction design. He prepared a RAP and related cleanup plans/specifications and bidding documents. Response actions included excavation, chemical stabilization, and off-site disposal of more than 17,000 tons of contaminated soil as industrial waste and daily cover at local permitted facilities.
- *Washington Avenue Reconstruction Project, Minneapolis, MN* —Environmental project manager for a Hennepin County subsurface investigation project in downtown Minneapolis. The project included placing numerous soil borings in the street and right-of-way. Because of extensive subsurface utilities and necessary street closures and permits, the project required close coordination between the environmental consultant, City and County officials, and subcontractors. The investigation was completed on schedule and within budget.
- *Multi-Site Risk and Liability Assessment, Agricultural Properties, Nationwide* — Conducted comprehensive environmental condition and liability assessments in support of property acquisitions. The property assessments included identification of potentially hazardous materials, evaluation of environmental impacts, and quantification of the associated actual and contingent liabilities in the context of regulatory, public, and private stakeholders.
- *Site Investigation & Remediation, Bulk Petroleum Terminal, Waskom, TX* — Managed the assessment and remediation of a commingled hydrocarbon plume associated with two adjacent bulk terminal facilities. The project included all phases of remedial investigation, from impact identification to complete definition of the extent of contamination in soil and groundwater and operation of a pump and treat remediation system. Provided budgeting,

coordination of subcontractors, oversight during drilling, monitor well installation, fate and transport modeling, permitting and groundwater monitoring activities, and preparation of a Tier 3 ecological risk assessment to increase cleanup target concentrations.

BECCA L. PRIMUS

Project Scientist

EDUCATION

B.A., Chemistry,
Lawrence University

CERTIFICATIONS

OSHA 40-Hour HAZWOPER Certification (29 CFR 1910.120) and annual refresher training

OSHA 29 CFR 1910.146
Confined Space Entry Training

CPR & First Aid

Niton X-Ray Fluorescence Analyzer Certification

ESRI ArcGIS Desktop I Certification

ESRI ArcGIS Desktop II Certification

Trimble TerraSync & Pathfinder Office Intermediate Training

Ms. Primus has ten years of experience in the environmental consulting field. As a project scientist, Becca's experience includes management of soil and groundwater investigations, vapor intrustion investigations, petroleum-specific investigations, response action plan design and implementation, and Brownfield redevelopments. With her past experience in various field sampling methods and environmental monitoring, in combination with her personal skills, she is proficient in maintaining project resources, budget and schedule, developing and implementing scopes of work, and effective communication with public and private clients and property owners.

Becca also has more than six years of experience using ArcGIS software and AutoCAD software to generate graphical drawings and figures for various projects. Her experience includes data collection in the field using GPS equipment and integrating data collection into ArcGIS software for figure preparation, aerial image collection and incorporation into project drawings, and elevation and concentration contour figures.

PROJECT EXPERIENCE

- *Pine Street Dump Site, Hastings, MN** — The site is a former dump site in a current residential area with chlorinated solvent vapor intrusion impacts and is a Minnesota Permanent List Priority (PLP) site. Under a Minnesota Pollution Control Agency (MPCA) Superfund contract, assisted in and has been the project manager for investigation activities including a passive soil gas survey, test pit and probe sampling of fill soil, and installation and sampling of permanent soil gas points. In addition, she has communicated with nearby residents to explain vapor intrusion, coordinate access agreements, complete sub-slab soil gas sampling, completed subcontractor bidding requirements for vapor mitigation system installation, oversaw vapor mitigation system installations and completed post-installation confirmation sampling per MPCA guidance, and completed Property Summary Reports (PSRs) for several properties. (May 2011 – Present)
- *721 1st Street North Apartments, Minneapolis, MN* — The 721 1st Street North Apartment redevelopment project included construction of a six-story apartment building with two levels of underground parking in a former railroad yard and adjacent to the Bassett Creek Tunnel. Becca was the project manager for entire life of the project, which included Phase I ESA, Phase II ESA, RAP, and RAP Implementation. RAP Implementation activities included disposal of contaminated fill soil, removal and proper management of an unknown tank and associated petroleum release reporting, testing and leak site closure, and proper permitting for construction dewatering activities. (November 2015 – January 2018)

**A portion of project completed while employed by another firm.*

- *Merit Enterprises, Isle, MN** — The site is a former metal plating facility with known hazardous substance releases that was destroyed by a fire. Under the MPCA Superfund contract, Becca was the project manager for various on- and off-Site investigations including groundwater sampling from existing monitoring wells, completion of soil borings with depth stratified temporary monitoring well installation and sampling, groundwater receptor survey, passive soil gas sampling, soil vapor probe investigation and off-site sub-slab soil vapor sampling at nearby residential properties. In addition, a limited mercury soil cleanup was completed at a nearby residential property due to the contamination runoff from the Site fire. The mercury cleanup activities included contractor bidding for soil excavation and disposal as well as oversight and documentation of the cleanup. (April 2014 – June 2016)
- *Northfield Depot, Northfield, MN** — Assisted in and project manager for the project using MPCA TBAP funding for relocating the historic depot structure and redeveloping the Site for multi-use transit center and public amenities. Project activities included completion of a SAP, HASP, Phase II ESA including soil and soil gas sampling in accordance of EPA QAPP, and RAP preparation. Becca discussed the entire investigation process and RAP implementation with the project stakeholders. (February 2015 – June 2015)
- *Former Mower County Humane Society, Austin, MN** — Project manager for the active petroleum leak site investigation under the MPCA Superfund contract. Project activities included access coordination for off-site properties, installation of monitoring wells on- and off-site, coordination of quarterly groundwater sampling activities following, final report preparation and project invoicing. (November 2014 – Present)
- *Artspace Hastings River Lofts, Hastings, MN* — Project manager for slab-on-grade, three-story artist lofts apartment building redevelopment project located on a portion of a former CERCLIS site. Project activities included Phase I ESA, Phase II ESA, RAP, RAP Implementation including contaminated fill soil remediation and post-construction vapor testing. Becca obtained assurance letters, technical approvals and No Further Action for the project and managed grant budgets and disbursement requests. (January 2016 – October 2017)
- *MPCA Ambient Groundwater Quality Monitoring Network, Metro Area, MN** — Performed site selection for more than 50 locations for monitoring well installation. Site selection criteria needed to satisfy established geology, groundwater elevation and use parameters. Following site selection, coordinated access agreements with the various property owners prior to well installation and obtained the proper permits for completion of the work. Following monitoring well installation, assisted in the final report preparation and project invoicing. (January 2011 – Present)

- *Former Pine City Bulk Site, Pine City, MN* — The site was initially investigated using MPCA TBAP funds and identified a petroleum release. Becca managed the petroleum-related LSI under the MPCA fund-financed program. The project activities included surface soil sampling and delineation, soil, groundwater and soil vapor drilling and sampling, monitoring well installation and sampling. In addition, coordinated with the City and adjacent property owners regarding access agreements, project results and next steps. (August 2016 – Present)
- *Elite Cleaners, Minneapolis, MN* —Project manager for the site assessment of a chlorinated solvent plume suspected from a dry cleaning facility. The project included obtaining access to off-site residential properties, complete sub-slab soil gas sampling, oversaw vapor mitigation system installations, and completed post-installation confirmation sampling per MPCA guidance. The project work has been completed in accordance with and been reimbursed from the Dry Cleaner Fund. (October 2016 – Present)
- *B.T. & A. Construction Limited Site Investigation, Various Locations, MN** — The project included completion of limited site investigations (LSI), leak site file closure and Petrofund reimbursement at 16 different properties with petroleum release. Becca was the project manager and her activities included project setup, access coordination, managing the completion of on-site activities (e.g. environmental monitoring and soil and groundwater sampling following MPCA guidance), final report preparation, project invoicing, and associated Petrofund application preparation. (June 2013-May 2014)
- *Hiawatha Business Center, Minneapolis, MN** —Assisted in annual groundwater sampling and reporting related to the Minnesota Permanent List Priority (PLP) site for arsenic. Project activities have included groundwater sampling of the network of monitoring wells, annual reporting and correspondence with the Minnesota Department of Agriculture (MDA) and comprehensive summary report preparation for the 25+ year history of the Site. (2008 – March 2017)

CHRISTOPHER F. THOMPSON, PE

Vice President / Principal Engineer

EDUCATION

University of Minnesota, Institute of Technology, M.C.E., Water Resources and Environmental Engineering, 1983

University of Minnesota, Institute of Technology, B.C.E., Water Resources and Environmental Engineering, 1981

CERTIFICATIONS

Registered Civil Engineer Minnesota (No. 18523)

Registered Civil Engineer Nebraska (No. E-11592)

Registered Civil Engineer Illinois (No. 062-058125)

Mr. Thompson is employed by Braun Intertec Corporation in Minneapolis and has been a consulting civil engineer for over 33 years. Mr. Thompson consults on environmental matters for state and federal regulated industrial sites throughout Minnesota and has been investigating, designing and remediating sites for public and private companies for 30 years. These sites have ranged from ordnance manufacturing plants, petroleum refineries, wood treatment manufacturing facilities, miscellaneous dumps and landfills, metal/equipment manufacturing plants, chemical formulation and manufacturing facilities, bulk fuel storage and distribution facilities, metal extraction manufacturing/processing plants and agricultural chemical formulation and packaging facilities. His responsibilities include document review, preparation of reports to support further assessment, permitting and design manuals, litigation support and detailed cost estimating efforts. Mr. Thompson is an integral part of design teams, providing the environmental and geotechnical input necessary to arrive at cost effective, sustainable and approved closure and redevelopment plans. Mr. Thompson has been the Principal Engineer and primary author of a number of significant Response Action Plans (RAP) and associated permits, Soil Management Plans, Quality Assurance Project Plans, and Implementation Reports for large Brownfield development sites including CERCLA and RCRA sites under going remedial investigations and remedial actions.

EMPLOYMENT HISTORY

- Braun Intertec Corporation, Vice President & Principal Engineer, January 2012 to Present
- AMEC Geomatrix Inc., Principal Engineer, June 2008 to January 2012
- Geomatrix Consultants, Inc., Vice President & Principal Engineer, 1999 to June 2008
- Rust Environment and Infrastructure/Earthtech, Principal Engineer, 1995-1999
- Montgomery Watson, Principal Engineer, 1994-1995
- SECOR International, Principal Engineer, 1990-1994
- Wenck Associates, Senior Engineer, 1986-1990
- Donaldson Company, Inc., Applications Engineer, 1982-1986
- University of Minnesota, Civil Engineering Research Assistant, Fall 1979 to Spring 1983
- Hickok & Associates, Civil Engineering Technician, Summers 1978, 1979

AREAS OF EMPHASIS

- RCRA/CERCLA/State Voluntary Site Investigations
- Feasibility Studies/Remedial Systems Alternative Analysis/Cost Estimating
- Remediation System Design & Start-up

- Soil Vapor Extraction, Vapor Barrier and Sub Slab Vent System Design & Construction
- Brownfield Site Development Engineering
- Third Party Document Review/Litigation Support/Environmental Due Diligence
- Construction Project Management/Cost Control
- Environmental Compliance

PROJECT EXPERIENCE

- Project manager and principal engineer for the environmental and geotechnical remedial design and remedial actions at two former wood treating sites in the Twin Cities area in Minnesota. Wood treatment compounds are regulated in the State of Minnesota by the Minnesota Department of Agriculture. These sites were both redeveloped into industrial parks over a 3-year period. Both Sites were State and Federal CERCLA/State of Minnesota Voluntary sites that border on, and discharge surface water to, waters of the State. Mr. Thompson's direct work has included: initial cost estimates of site investigation and remedial actions; development of work plans and performance of sampling and analysis of soils and surface water for pentachlorophenol (PCP), polynuclear aromatics (PAH), characteristic petroleum compounds and dioxins/furans; preparation of a multiple Response Action Plans (RAP) and site specific work plans for soil and groundwater remedial actions during phased and concurrent development activities; design of a groundwater gradient control and DNAPL (creosote) collection system; design and implementation of a monitored natural attenuation (MNA) remedy for VOC contaminated groundwater and oversight and documentation of all remedial actions, significant soil corrective actions during development, civil design for site development; and surface water discharge permitting and monitoring for construction period services including NPDES permit, site regulatory de-listing correspondence and negotiations and daily oversight of soil and groundwater remedial actions.

- Principal Engineer, for the remedial investigations, response action planning and engineers cost estimates for the former Howe Chemical Site, Brooklyn Center and Minneapolis, MN. A major fertilizer manufacturer and agricultural chemical distribution facility for over four decades that burned to the ground January 6, 1979. The site had documented soil and groundwater impacts by characteristic petroleum compounds, a range of agricultural chemicals including chlorinated pesticides and polynuclear aromatic hydrocarbons (PAH). Response actions included asbestos abatement, building demolition, soil excavation and off-site disposal, development of a risk-based on-Site closure plan and subsequent placement of contaminated soils beneath permanent cover, vapor barrier and venting systems beneath the new building on-Site and creation of clean-soil green space and utility corridors.

CHRISTOPHER F. THOMPSON, PE

Vice President / Principal Engineer

- Principal Engineer, Remedial investigations, response action planning and implementation of the response actions during the redevelopment of the former Naval Industrial Reserve Operating Plant (NIROP) and FMC Sites in Fridley, MN since 2012. This 122 acre site is significantly contaminated by chlorinated solvents and is a Federal and State CERCLA site and also includes a RCRA site undergoing corrective action, numerous petroleum leak sites, and a 2,000,000 square foot operating facility, developed and operated since 1940. The on-going approximately 6-year project has included multiple remedial investigations for the four phases of the redevelopment, development and approval of remedial action work plans, regulatory negotiations and de-listing of the on-Site soil operable units, coordination with the US navy for re-construction of many aspects of the Navy's groundwater pump and treatment system and the planning and implementation of demolition of 1,500,000 ft^2 of the original manufacturing building. The project is now in the implementation of the soil corrective action of the 4^{th} of four phases.

- Project Engineer for an in-depth technical review, for litigation purposes, of both the Remedial Investigation (RI) and Feasibility Study (FS) of the Ott/Story/Cordova National Priorities List (NPL) Superfund Site in Muskegon, Michigan. The site had over 100 groundwater monitoring wells in a complex, interconnected aquifer system and widespread soil and groundwater contamination by multiple metals and chlorinated and semi-volatile organic compounds. The project included the review and cataloging of over 300 previous technical reports prepared for this site and resulted in a thorough documentation report regarding the conformance of the RI/FS to regulatory requirements.

- Principal Engineer for the remedial investigation, building demolition, temporary cover and remedial action planning for a bulk fertilizer storage and transfer facility on the Minnesota River, Twin Cities, Minnesota. This facility has been located at the same property since the 1940's and continues to operate today. Principal engineer for the negotiations and coordination with the Minnesota Department of Agriculture. Soils are clays over silty sand and understanding surface water/groundwater interactions and relationship to the adjacent river stage has been a critical effort to the remediation planning.

- Senior Engineer for the investigation and treatment/disposal option review for two confidential client Seed Treatment processing facilities impacted by liquid fungicide formulated with phenyl mercuric acetate. Responsible for investigations of building materials (wood and concrete) and soils containing mercury, state and federal regulatory review and assessment regarding hazardous waste code determination and cost estimating and recommendations for a path forward to minimize liability associated with the mercury releases.

CHRISTOPHER F. THOMPSON, PE

Vice President / Principal Engineer

- Principal Engineer for multiple Phase I Environmental Site Assessments and subsequent remedial investigations of Recognized Environmental Conditions at multiple plant protection and nutrition agricultural chemical distribution facilities and agricultural chemical aerial application facilities throughout the mid-west United States. These team efforts were comprehensive, based on a pre-defined merger and acquisition schedule and were performed no matter the month of the year.

- Principal Engineer and Project Manager for the redevelopment of 18 acres within the City of St. Louis Park which was mainly the former National Lead Superfund site and a portion of the former Riley Tar Superfund site. This 2-year project included extensive coordination and planning with the private developer and the City of St. Louis Park, local citizens, site tenants and contractors and required work directly for both the developer and the City. Mr. Thompson led a team of professionals and subcontractors through the assessment, City and State permitting negotiations and permit development, alternative analysis and cost estimating, design and construction management for the redevelopment of the entire site.

- Principal Engineer, for the closure design of paper sludge landfill located near Eau Claire WI. Oversaw design engineers and the work included development of design plans and engineers cost estimate for the landfill capping, surface water run-off and leachate collection systems at the Site. Leachate was designed to be collected, stored on-Site and periodically collected for off-site disposal. Storm water was designed to be directed to on-Site storm water retention ponds and adjacent property wetlands.

- Principal Engineer, for Final Feasibility Study and Remedial Design/Remedial Action Work plan for Operable Unit 2 (OU-2) at the Twin Cities Army Ammunition Plant (TCAAP), Arden Hills, MN. This included the alternatives review and analysis and cost analysis for both soil and groundwater remedial alternatives for all of the Areas of Concern (AOC) on the 1000 acre site. Mr. Thompson developed the work plan and conceptual design for a Corrective Action Management Unit (CAMU) for use with the OU-2 restoration alternatives for the metals and organic contaminated soil sites.

- Project Manager, for the design and construction of a land farm facility for treatment of crude oil contaminated soils. This project was undertaken for a confidential pipeline transmission company in northern Minnesota. An extensive literature search and resulting description of the history and chemistry of enhanced microbial degradation of crude oil in surface soils was developed in support of a subsequent land farm application to the Minnesota Pollution Control Agency.

- Project Engineer/Project Manager, for preparation and implementation of the RCRA Closure Plan for an ordinance manufacturing facility in Saugus, California. The site contained 14 RCRA-regulated hazardous waste treatment and storage facilities situated on 950 acres. Developed the Closure Plan, including a Health & Safety Plan, and developed and implemented extensive soil and groundwater sampling and analysis at the RCRA units. The analysis included extensive bioassay testing of contaminated soils. The completion of the Closure Plan involved extensive negotiations with the state and federal regulatory agencies and extensive documentation of all activities and results.

- Principal Engineer and Project Manager, for the redevelopment of the former Lithium Corporation of America Site in St. Louis Park, Minnesota. This 7 acre site had been utilized during the Second World War for the extraction of lithium from imported ore and the waste discharge from that process was deposited onto the site and adjacent properties. Mr. Thompson led a team through site investigation, remedial system planning, cleanup standard determination, groundwater dewatering and discharge permitting, soil and waste excavation and disposal, groundwater monitoring and reporting and eventual site regulatory closure.

- Project Engineer for design and supervision of the installation and startup of a large vapor extraction system at an industrial facility in Security, Colorado, to remediate soils contaminated with perchloroethylene (PCE). This work involved development of comprehensive plans and specifications for bidding and construction. The system consists of 24 vapor extraction vents competed to depths up to 42 feet, five individual vacuum blowers and controls, condensation collection systems, heat taping, and insulation. This successful system has remediated the soils to almost no detectable levels and has removed over 10,000 pounds of perchloroethylene.

- Principal Engineer for environmental assessments and compliance review of four separate dairy processing plants performed for the Davisco Corporation. The facilities are all active manufacturing plants that produce whey and other dried dairy products from raw milk. The facilities were located within two states and in remote, relatively small towns. A quick turn-around period was required for this project and included developing a common format and consistency for all of the reports.

DANIEL P. BARRETT, PG

Principal Scientist

EDUCATION

M.S., Geology,
Baylor University

B.S., Geology,
University of Minnesota, Duluth

PROFESSIONAL REGISTRATIONS

Professional Geologist:
MN No. 30674
WI No. 571

Mr. Barrett is a principal scientist at Braun Intertec with more than 25 years of experience advising a wide range of commercial, industrial, and municipal owners and developers. Dan is a knowledgeable corporate and municipal partner providing numerous mathematical models and data evaluation solutions used for wellhead protection, wellfield expansion, predicting surface water and groundwater responses, groundwater infiltration, design of remediation or dewatering systems, and resolution of groundwater use disputes.

ENVIRONMENTAL MANAGER EXPERIENCE

- *Environmental Manager, Target Corporation, Minneapolis, MN* ––Provided environmental subject matter expertise and program management of the following: Real Estate Environmental Due Diligence; Environmental Monitoring and Remediation; Real Estate Purchase and Disposition; Legal Resolution - Environmental Subject Matter Expert; Environmental Compliance; Oil, Gas, and Water Well Abandonment; Asbestos Management; and Deed Restrictions and Site Access Agreements. (2006-2015)*
- *Environmental Due Diligence, Multiple Locations, United States and Canada* –– Managed environmental due diligence and cleanup activities allowing for property development at more than 500 locations. Site investigations included Phase I activities, drilling, and sampling soil, groundwater, and vapor. Cleanup activities included source removal, groundwater treatment, vapor extraction/treatment, and engineered barriers.*

HYDROGEOLOGY AND MUNICIPAL WELL EVALUATION/PROTECTION

Dan conducted and managed all phases of hydrogeologic investigations for the purpose of aquifer evaluation, source water protection, and wellhead protection. Activities included aquifer test design and analysis, collection of field data, evaluation of groundwater flow systems, completion of groundwater flow models, and the design and construction oversight of water wells at the following locations:

- *Andover, MN*
- *Carver, MN*
- *Chaska, MN*
- *Dayton, MN*
- *Farmington, MN*
- *Forest Lake, MN*
- *Hinckley, MN*
- *Mahtomedi, MN*
- *Moose Lake Correction*
- *New Scandia, MN*
- *Oak Park Heights, MN*
- *Plymouth, MN*
- *Princeton, MN*
- *Ramsey, MN*
- *Rockford, MN*
- *Sartell, MN*
- *Sauk Centre, MN*
- *Savage, MN*
- *Shakopee, MN*
- *St. Martin, MN*
- *Winona, MN*
- *Woodbury, MN*

**While employed by another firm.*

BRAUN INTERTEC

DANIEL P. BARRETT, PG

Principal Scientist

EDUCATION

M.S., Geology,
Baylor University

B.S., Geology,
University of Minnesota, Duluth

PROFESSIONAL REGISTRATIONS

Professional Geologist:
MN No. 30674
WI No. 571

- *Hiawatha Light Rail Transit (LRT) Corridor Water Shed District, Minneapolis, MN* ––Senior hydrogeologist for a Watershed District involved in the Hiawatha LRT corridor. This controversial and highly visible project involved development through an area with historic surface water features. Project activities included reviewing construction plans to limit environmental impacts, completing workplans for investigating impacts to the regional aquifer, representing the Watershed District in technical presentations with the Minnesota Department of Natural Resources, Minnesota Department of Transportation, and State Legislature.*
- *Olmsted County, Rochester, MN* ––Senior hydrogeologist for Olmsted County's planned 50-year expansion of the Rochester, Minnesota area. Delivered recommendations that closely examined the environmentally sensitive groundwater recharge zones contributing water to the existing City water supply wells. Study findings were used to create land development controls that protected the areas that contributed to natural attenuation of nitrates and other contaminants to the regional aquifer system.*
- *Lake Association, MN* ––Senior hydrogeologist representing a Lake Association opposing the development of a rock quarry on the banks of the Zumbro River. Requested and reviewed Environmental Assessment Worksheets (EAW) reports and provided expert testimony to the County Board of Commissioners regarding potential degradation of surface water quality, negative impacts to groundwater resources, and probable quality of the quarry rock.*
- *Scott County, MN* ––Conducted geologic and groundwater evaluations for Scott County, Minnesota to determine potential impacts to protected fens and springs from the appropriation of groundwater from high and low density development options. The study was used to prepare an Alternative Urban Area-Wide Review and was key in formulating a policy for future growth within the County.*
- *Rochester, MN ––Conducted* a series of aquifer/pump tests in order to determine the hydraulic properties of the unconsolidated and bedrock underlying a proposed utility corridor crossing under the Zumbro River. Aquifer parameters were used to model scenarios for dewatering for planned construction activities.
- *Assessment of Aquifer Responses* ––Lead the development of a new approach for the assessment of aquifer responses to internal and external stresses. This unique and cost-effective approach integrated an advanced wireless communications network and geographic information technologies. Work was conducted under a NASA Earth Observation Commercial Application (EOCAP) Grant. (Patent Number 5,553,492)*

**While employed by another firm.*

DANIEL R. DEJOODE, PH.D.

Senior Scientist

EDUCATION

Ph.D., Ecology and Evolutionary Biology, University of Michigan
M.S., Botany, Iowa State University
B.S., Agronomy, Iowa State University

CERTIFICATIONS

Minnesota Certified Wetland Delineator

40-hour HAZWOPER Certification and annual refresher training

24 hour MSHA safety training and annual refresher training

TRAINING

40-hour Wetland Delineation - Wetland Training Institute, 1992

Wetland Delineation Refresher Course - Wetland Training Institute, 1994

Wetland and Riparian Restoration - Wetland Training Institute, 1994

Wetland Functional Assessment - MnRAM - Board of Water & Soil Resources, 2005

Implementation of the National Environmental Policy Act - Duke Environmental Leadership Program, Duke University, 2007

Accounting for Cumulative Effects in the NEPA Process - Duke Environmental Leadership Program, Duke University, 2009

Considering Greenhouse Gas Emissions & Climate Change Under NEPA - Duke Environmental Leadership Program, Duke University, 2010

Natural Resource Damage Assessment Workship – Law Seminars International, 2013

Natural Resource Damage Assessment Workship - Northwest Environmental Training Center, 2014

Dr. DeJoode is an ecologist with 25 years of natural science experience. He is well versed in permitting for impacts to wetlands, public waters, and endangered species as required by federal and state statutes. He has completed numerous wetland and ecological projects in the Midwest and Great Lakes for a variety of industrial clients such as pipelines, mines and utilities. He has expertise in analyzing and interpreting ecological cause-and-effect through proper experimental design, standard statistics, and multi-variate statistics.

He has worked with private industry, government agencies and tribal communities to conduct field investigations and controlled experiments to elucidate direct and indirect ecological effects. He is familiar with principles of aquatic and terrestrial ecology, quantitative and qualitative analyses, ecological risk assessment and toxicology. He is experienced applying botanical and ecological science to a wide variety of impact analyses including investigations of rare natural communities such as calcareous fens and rock outcrops, greenhouse gas emissions from land use conversion, wild rice distribution related to water quality, and ecological impacts of oil spills.

PROJECT EXPERIENCE

- *Effects of Forest Management on Plant Diversity, Menominee Indian Reservation, Wisconsin* – Daniel completed research into ecological impacts of logging on forest plant diversity. Investigations involved (1) quantitative studies of plant communities in managed forest ecosystems and (2) experimentation to elucidate factors responsible for changes in species composition after logging. Plant communities were compared in reservation forest stands and stands in the adjacent Nicolet National Forest. Temporal changes in plant communities were quantified. Experiments were conducted to determine the effects of forest management on herbaceous species survival, growth, reproduction, and seed dispersal. Ant communities and seed dispersal by ants were compared in logged and un-logged forests. Understory plant species richness in logged and un-logged forests was compared by combining published results from temperate forests around the world. Statistical analyses included ANOVA, logistic regression, multi-variate techniques and meta-analysis.
- *Oil Spill Response, Calhoun County, Michigan* – Dr. DeJoode was the PhD scientist on a project that included an ecological impact assessment of an oil spill in a river and associated floodplain. His direct work included development and implementation of a public-private collaborative vegetation sampling protocol to document pre-impact conditions as part of a Natural Resources Damage Assessment (NRDA) which included an assessment of long-term toxicological and physical impacts.
- *Proposed Non-ferrous Mine, St. Louis County, Minnesota* – Dr. DeJoode conducted endangered plant surveys for a mine site, tailings basin and water discharge pipeline. He prepared ecological/land use portions of greenhouse gas analysis. He contributed to the design and implementation of field studies of water quality and wild rice and associated habitat. He was the primary author

of a study of the association of river geomorphology, landscape ecology and wild rice distribution. He also helped design, conduct and analyze a wetland monitoring project to document baseline conditions and assess indirect ecological effects on wetland composition and health. He assisted in design and analysis of multi-year studies of wild rice abundance and ecotoxicology of sulfate in surface waters.

- *Chester 24 Calcareous Fen Management Plan*, *Polk County, Minnesota* – Daniel conducted field surveys, analyzed potential impacts, prepared permit applications, and completed construction observation at pipeline repair sites in a calcareous fen. He was primary author of a Calcareous Fen Management Plan that was approved by Minnesota Department of Natural Resources under the Minnesota Wetland Conservation Act. Field work included soil descriptions, peat mapping, hydrological monitoring and rare plant surveys, as well as describing long term physical and toxicological impacts from a historic petroleum release. The management plan assessed potential impacts of excavation for pipeline maintenance in a sensitive and rare wetland type. Mitigation measures developed by Daniel included temporary relocation of rare plants and wetland sod during winter construction. Monitoring involved continuous hydrology monitoring, documentation of impacts to soil and vegetation and development of a five-year post-construction monitoring plan of populations of two state-listed plant species.
- *Highway siting study in Minnesota River Valley at Seminary Fen, Carver County, Minnesota* – Dr. DeJoode developed work plans, conducted ecological field studies, and prepared impact analyses of rare calcareous fen ecosystem in support of federal/state highway EIS process. The project involved hydrology monitoring, soil description, and detailed botanical and ecological studies to apply guidelines on identifying calcareous fens in Minnesota. Several state-listed plants were identified and mapped. Based on hydrogeological modeling, impact assessments were made to determine potential impacts from construction and placement of six alternative highway corridors in or near a several hundred acre wetland complex containing one of the largest remaining rare calcareous fens in the Twin Cities metro area. Numerous agency and stakeholder meetings were conducted to solicit input and present work plans and findings.
- *Oil Spill Response, Morrison County, Minnesota* – Daniel completed a post-spill wetland delineation and endangered species assessment after a crude oil pipeline ruptured. Wetlands were impacted by the release of petroleum and containment and recovery efforts. Using historic aerial photos and site observations, the original extent of wetlands was estimated. He prepared a successful wetland permit application and mitigation plan that was approved under Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act. Approximately 10 acres of wetland was restored and created as compensatory mitigation. The wetland restoration and creation replaced lost wetland acreage, functions and values and was deemed complete by regulatory agencies after five years of monitoring.

BRAUN INTERTEC

KEITH E. LINTON, CHMM

Environmental Toxicologist

EDUCATION

M.S., Environmental Science, Toxicology, University of Texas Heath Science Center

B.S., Environmental Science, Chemistry minor, Sam Houston State University

CERTIFICATIONS

Certified Hazardous Materials Manager No. 13898 (2006)

Board Certified Environmental Scientist (BCES) - Environmental Toxicology specialty (2014)

OSHA 40-hr HAZWOPER

Mr. Linton is an environmental scientist with over 20 years of environmental site assessment and remediation in Texas. He has performed Phase I and II Environmental Site Assessments (ESA) on a variety of sites supporting property transactions. Keith is an experienced human health risk assessment specialist able to interpret analytical data to assess risks via exposure pathways including vapor intrusion from subsurface contamination into the indoor air of an overlying structure. Keith has significant expertise in the TCEQ Texas Risk Reduction Program (TRRP) regulations and guidance which govern the investigation and remediation of sites having soil and groundwater impacts from spills or discovery of historic contamination from past operations. This experience has included use of the TCEQ voluntary cleanup program (VCP), municipal settings designation (MSD) and other risk-based approaches designed to promote safe redevelopment of contaminated propertiesHe has managed dozens of projects involving sampling and analysis of environmental media, risk evaluation and remediation to comply with applicable regulations and to achieve closure.

RISK ASSESSMENT EXPERIENCE (1992-PRESENT)

- Project manager and co-author of ecological risk assessment for former ExxonMobil refinery site including regulator negotiation regarding use of geostatistical methods and site-specific Tier 3 uptake factors, addressed regulator comments to include a small ranging receptor evaluation and utilized the risk management recommendation element to ultimately steer focus of cleanup back to human health goals,
- Evaluated indoor air vapor intrusion pathway risks for a former Northrop Grumman machine shop operation following EPA VISL and California DTSC guidance.
- Provided risk assessment and regulatory support leading up to property transaction for ExxonMobil's former upstream research center laboratory facility located in Houston, TX.
- Performed a Plan B RECAP risk assessment under the Louisiana LDEQ RECAP program for a retail site.
- Performed statistical evaluation for Baton Rouge, LA refinery periodic RCRA groundwater monitoring program based on methods in EPA's Unified Guidance using EPA's ProUCL software.
- Managed risk assessment team responsible for closure of 26 waste management units at former Chevron El Paso refinery. Developed risk assessment approaches and site-specific cleanup levels. Worked onsite during CAMU construction to provide real-time guidance to remediation contractors regarding the extent of excavation to be performed to achieve risk-based standards.
- Performed risk assessment work for coal combustion residual (CCR) landfills for NRG Energy and CPS Energy.

- Performed risk assessments for two former oil-field service machine shop operations (Baker Hughes, Inc.) with chlorinated groundwater plumes.
- Performed risk-based closures for groundwater styrene impacts at the BP Texas City Chemical Plant (now Ineos) from initial discovery continuing over several years to final closure approval under the Texas Risk Reduction Program (TRRP). This project involved establishing a plume management zone (PMZ) using calculated attenuation action levels based on the site-specific distance-attenuation rates.
- Developed site-specific human health and ecological action levels including consideration of air dispersion to offsite receptors and integration of OSHA levels for protection of on-site workers and monitoring program development for ConocoPhillips Borger, TX refinery Facility Operations Area (FOA) permit application.
- Performed baseline human health risk assessment for Palmer Barge Line Federal Superfund site following EPA RAGS protocol including interaction with PRP group and EPA/TCEQ reviewers. The primary exposure pathway of concern for human health involved human consumption of fish exposed to metals in sediment. Identified the extent of remediation necessary to meet target risk levels. Risk assessment was approved, ROD published, and the site was delisted following completion of remediation activities.
- Prepared human health and ecological risk assessment for TX State Superfund Sites including Higgins creosoting site.
- Performed risk evaluations including development of site-specific risk-based corrective action target concentrations and alternate concentration limits (ACLs) for RCRA facility assessments including ExxonMobil Baytown Refinery waste management units.
- Completed a Screening Level Ecological Risk Assessment (SLERA) for ALON USA Energy petroleum terminal. Developed strategy to reduce extent of remediation through use of LOAELs and statistically derived representative concentrations.
- Performed risk-based evaluation of Phase II ESA data for an LNG development project in Freeport, TX
- Performed baseline risk assessment for closure of impoundments at a former CORCO refinery site located in Puerto Rico under EPA enforcement order. Risk assessment included indirect food-chain pathways.
- Performed baseline risk assessments for DuPont chemical plants including Beaumont Works plant including evaluation of surface water and sediment impacts.
- Maintained a database of product toxicity testing data for oilfield specialty chemicals including scale inhibitors and biocides. Ordered and reviewed laboratory aquatic toxicity tests as needed per customer requests. Assisted with FIFRA pesticide registration program toxicity testing requirements.

JEFFREY A. ARNDT, PG

Staff Scientist

EDUCATION

B.S., Geology,
University of Minnesota

PROFESSIONAL REGISTRATIONS

Professional Geologist
MN No. 51598

Minnesota Department of Health
Asbestos Inspector
No. AI12508

CERTIFICATIONS

OSHA 29 CFR 1910.120
40-Hour HAZWOPER Certification and Annual Refresher Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

Mr. Arndt has worked in the environmental consulting field since 2007. Jeff provides project management, field monitoring, sampling, and documentation on Phase II investigations, construction monitoring, and Brownfields cleanup projects. He has significant experience providing field implementation of Phase II investigations along Minnesota Department of Transportation (MnDOT) transportation corridors and he is very familiar with working on properties with difficult access and/or traffic control issues. He has experience with various soil, groundwater, and soil gas sampling methods, and his additional project responsibilities also include project management, data tabulation, soil boring logs, and Phase II report preparation. In addition, Jeff has assisted with Phase I Environmental Sites Assessments (ESA) and hazardous materials surveys.

PROJECT EXPERIENCE

- *Various MPCA soil vapor investigations* —Assisted in the project management of area wide soil vapor investigations (Lyndale Avenue Corridor in Bloomington and Pine Street Dump in Hastings) which included the coordination of field work, contact with property owners, and report preparation. Also conducted field work by collecting soil vapor samples from project sites.
- *Multiple Phase II ESAs* —Acted as project manager and field technician for numerous Phase II ESAs throughout the state. Coordinated field work, communicated with clients and property owners, prepared final reports, conducted soil, groundwater, and soil vapor sampling.
- *Multiple Transportation Corridors, MnDOT** —Lead field technician for many MnDOT projects that included the completion of Phase II investigations and/or construction monitoring. Locations included several large-scale roadway corridor/interchange projects in the Twin Cities metro area as well as projects areas across the state, including Alexandria, Angora, Big Falls, Cosmos, Duluth, Effie, Esko, Indus, Kenyon, Lindstrom, Moorhead, Northome, Redby, Rice, Staples, Virginia and Winona.
- *CSAH-Washington Avenue, Minneapolis, MN —Coordinated field work and o*versaw the implementation of the CCP that included the excavation of contaminated soils during construction activities, and prepared the report documenting project activities and findings.
- *LSI at Mound Westonka High School, Minnetrista, MN —Lead field technician for the LSI and prepared the final report.*
- *The BROWNstone, St. Paul, MN* —Oversaw the excavation of contaminated soils in accordance with the RAP and assisted in the preparation of the implementation report.
- *Schmidt Artist Lofts (Former Schmidt Brewery), St. Paul, MN* —Lead field technician for Phase II investigations of the site which included collecting samples from soil borings, test trenches, and soil gas probes. He also assisted in the hazardous materials surveys of site structures.

**While employed by another firm.*

- *Pillsbury Lofts (Former Pillsbury A-Mill), Minneapolis, MN** — Lead field technician for Phase II investigations of the site which included collecting samples from soil borings, test trenches, and soil gas probes. He also assisted in the hazardous materials surveys of site structures.
- *Buzza, Minneapolis, MN** — Field technician for Phase II investigation of the site which included collecting samples from soil borings. He was also the field professional for the removal of the underground storage tank (UST) which included collecting soil samples from around the tank.
- *Hennepin Energy Recovery Center (HERC) Site, Minneapolis, MN** — Field technician for a Phase II investigation around the HERC site. Specific field activities included soil classification, organic vapor screening using a photoionization detector (PID), and soil sample collection for analytical testing.
- *Railroad Site, Coon Rapids, MN** — Assisted in the assessment and remediation of a diesel fuel spill in Coon Rapids. Specific field activities included the installation of temporary groundwater monitoring wells, groundwater sampling, and the operation and maintenance of a free product skimmer system.

GRANT C AUDETTE

Environmental Technician II

EDUCATION

B.S., Hydrology
University of Wisconsin-Stevens Point

CERTIFICATIONS

OSHA 40-Hour Hazardous Waste Operations
29 CFR 1910.120

OSHA Hazards of Confined Space Entry
29 CFR 1910.146

Mr. Audette has two years of experience as a environmental technician for Braun Intertec Corporation. Grant specializes in a variety groundwater, wastewater and stormwater monitoring, and sampling methods. He has performed industrial wastewater monitoring for more than fifty clients involving confined space entries, the use of ISCO samplers, and flow meters. In addition, Grant has stabilized and sampled monitoring wells according to Minnesota Pollution Control (MPCA) guidelines, using submersible, inertial, and low flow bladder pumps. Grant has worked extensively on the design and implementation of monitoring programs for inflow/infiltration and TMDL studies.

PROJECT EXPERIENCE

- *MPCA Ambient Groundwater Quality Monitoring Network, Metro Area, MN*— During Fiscal year 2017 and 2018 Grant performed oversight during the installation of one water table well and two deep nested wells in the metro area. Once completed, Mr. Audette also developed the three wells according to MPCA guidelines.
- *Former Mower County Humane Society, Austin, MN* —Mr. Audette has been the lead field technician working on this site since 2016. Nine monitoring wells were surveyed, developed, and are sampled on a quarterly basis using low flow sampling techniques and procedures.
- *Former Pine City Bulk Site, Pine City, MN* — Mr. Audette has been the lead field technician working on the site since 2016. Five monitoring wells were survey, developed, and are sampled on a quarterly basis for the petroleum release under the MPCA fund-financed program.
- *Cottonwood County Sanitary Landfill, Cottonwood County, MN* — A network of 17 monitoring wells, 11 gas points, 2 leachate tanks and 6 lysimeters are monitored on a quarterly basis. Grant has been the lead field technician since 2016. His primary duties are equipment preparation, field sampling and QA/QC review.
- *ADS Rolling Hills Landfill, Buffalo, MN*— A network of 25 monitoring wells, 1 leachate tank and 8 lysimeters are monitored three times a year. All the monitoring wells are stabilized and sampled using dedicated low flow/geotechnical bladder pumps. Grant has been the lead field technician since 2016. His primary duties are equipment preparation, field sampling and QA/QC review.

JULIE L. BAUMEISTER, GIT

Staff Scientist

EDUCATION

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

M.S., Geoscience,
University of Nevada, Las Vegas

PROFESSIONAL REGISTRATIONS

Geologist In-Training (GIT)
No. 147407

CERTIFICATIONS

OSHA 40-Hour Hazardous Waste Operations Certification (29 CRF 1910.120) and refresher training

Minnesota Department of Health Asbestos Inspector

OSHA Hazards of Confined Space Entry (29 CRF 1910.146) and refresher training

Fall Protection training

HONORS/AWARDS

Braun Intertec Safety Employee of the Month (December 2017)

Ms. Baumeister has been working in the environmental consulting field since 2014 and has experience in a variety of environmental projects. As a staff scientist, Julie's experience includes a combination of field work, historical and regulatory research, technical report preparation, quality assurance/quality control (QA/QC) review of laboratory data, and project management assistance for work related to Phase I Environmental Site Assessments (ESAs), Phase II ESAs, grant applications, Response Action Plans (RAPs), RAP Implementations, and environmental review. Her combination of technical and personal skills ensures that projects are completed efficiently and effectively.

PROJECT EXPERIENCE

- *Residential Redevelopment Project, St. Paul, MN* — The residential redevelopment project included the demolition of three former vacant warehouse buildings and construction (currently ongoing) of a four-story apartment building with one level of underground parking. Julie was the lead field technician for the multi-phased investigation activities for the developer (client), which included soil borings, temporary groundwater monitoring wells, and soil vapor probes. Contamination was identified across the site associated with previous site uses, which included an electrical company, a manufacturer of compressed/liquefied oil gas, and a manufacturer of purified phenols through extraction from wood tar. Julie contributed technical writing, data tabulation, and QA/QC review for the investigation reports. The property was entered into the Minnesota Pollution Control Agency (MPCA) Voluntary Investigation and Cleanup (VIC) and Petroleum Brownfield programs to obtain liability assurances. Additionally, Julie has been assisting with project management responsibilities for the RAP Implementation activities (which are currently ongoing) including coordination with the environmental technician overseeing on-site response actions; communication with subcontractors, the project general contractor, and the client as needed; processing and preparing project invoices; and preparing project documentation for final reporting. Environmental remediation activities to date have included asbestos abatement and hazardous materials removals prior to demolition of former site structures, the removal and proper disposal of over 40,000 tons of petroleum and non-petroleum contaminated soil, additional investigation to delineate a mercury-contaminated soil "hot spot," removal and proper disposal of mercury-contaminated soil, and removal and proper disposal of an approximately 10,000-gallon vault structure that contained liquid, sludge, and debris at appropriate permitted facilities.
- *Ambient Groundwater Quality Monitoring Network, MPCA, Metro Area, MN* — Julie has provided field oversight to document the installation of at least 17 groundwater monitoring wells. She was responsible for preparing a detailed boring log and field notes, selecting well completion depth based on field observations, and documenting the well installation and preparation of the

field well construction diagram. Julie has also assisted the project manager in the site selection process for some locations for monitoring well installation. Site selection criteria needed to satisfy established geology, groundwater elevation, and use parameters. Additionally, Julie has coordinated access agreements with the various property owners prior to well installation and obtained the proper permits for completion of the work. She coordinated with and provided direction for field technicians during the installation of and the development of a few monitoring wells. Following monitoring well installation, she assisted in the final report preparation.

- *Wilder Square Cooperative, MPCA, St. Paul, MN* — Julie participated in the preparation of the Sampling and Analysis Plan (SAP) for the Phase II ESA. She provided field assistance in the Phase II drilling investigation which included more than 200 soil borings. She contributed technical writing, technical review, and data tabulation for the Phase II Investigation Report (June 2015) and Data Assessment Report (DAR). Using information from previous environmental reports, she assisted in the preparation of a SAP (April 2016). The SAP recommended additional vapor sampling, which would include the sampling of sub-slab soil vapor, indoor air, and outdoor air in and near residential buildings where elevated concentrations of chlorinated volatile organic compounds (VOCs) were identified. Additionally, Julie contributed technical writing, technical review, and data tabulation for the Additional Vapor Assessment Report (June 2016), which also included a DAR.
- *Area-Wide Contamination Study, MPCA, Bloomington, MN* — Julie collected soil vapor samples throughout the project area with known chlorinated solvent contamination and she installed vapor pins in several commercial and residential structures throughout the project area and collected sub-slab soil vapor samples. Julie coordinated with homeowners and property managers to schedule sampling activities. She also assisted in data tabulation, report preparation, bid solicitation for sub-slab depressurization system installation, and provided oversight during pre- and post-mitigation diagnostic testing.
- *Former Gary's Furniture, MPCA, Frazee, MN* — Julie prepared a SAP for the completion of a pre-demolition hazardous materials survey for the Former Gary's Furniture property. The scope of work in the SAP included sampling and testing of suspect asbestos-containing materials and potential lead-based paint coated building components. Methods outlined in the SAP were consistent with those described in the EPA-approved Quality Assurance Project Plan (QAPP). Additionally, Julie assisted with the development of a site-specific Health and Safety Plan (HASP) prior to the start of work.
- *Limited Site Investigations (LSI), MPCA, MN** — Julie has completed LSIs involving soil, water, and/or soil vapor sample collection, soil classification, organic vapor monitoring, and submittal of samples for laboratory analysis. Julie also completed the door-to-door receptor survey for properties within a 500-foot radius of an identified petroleum release for an LSI in Austin, Minnesota.

**While employed by another firm.*

BRETT BERTRAM

CAD Technician

EDUCATION

A B.A., Landscape Architecture
North Dakota State University

Continuing Education:
Autodesk University Training

CERTIFICATIONS

AutoCAD Certified Professional
AutoCAD Civil 3D Certified Professsional

PROFESSIONAL AFFILIATIONS

Autodesk User Group International (AUGI)

Mr. Bertram has more than 19 years of experience in constructing models and producing figures to support geotechnical and environmental staff throughout the Braun Intertec local and regional offices. This includes developing and integrating a multitude of geospatial datasets, the generation of figures, working with point cloud data to accurately depict current site conditions, and creating subsurface BIM models. Geospatial deliverables commonly include the graphic representation of analytical data, soil boring location information, site monitoring activities including groundwater contour information, and remediation actions.

PROJECT EXPERIENCE

- *Near Northside Redevelopment Project, Minneapolis, MN* — Worked with geotechnical engineers to create figures depicting soil boring information and areas of impacted fill. This graphic representation helped project architects and engineers further their design in a way that avoided additional costs associated with construction in the affected materials. Utilized point cloud data obtained through photogrammetry via UAS data collection to calculate stockpile volumes. Point cloud was initially processed in ReCap Pro and then brought into Civil 3D for volume calculations.
- *CapX2020 Big Stone to Brookings Project, SD* — Used point cloud data collected via truck mounted LiDAR (mobile mapping) to create an existing ground surface of haul roads. Point cloud was classified using Trimble Trident software, prepped for further use in ReCap Pro, and brought into Civil 3D to create an existing grade surface for use in future comparisons.
- *Minneapolis Institute of Art, Minneapolis, MN* — Utilized point cloud data and orthomosaic imagery to delineate building features deemed significant by the Project Architect.
- *Black Diamond / Preferred Sands Facility Redevelopment – Woodbury, MN* — Utilized current and historic soil boring data to create a subsurface model of the site. Due to recent mining activities on the site the model had to be reviewed for consistency with current conditions and irrelevant / outdated boring information had to be amended or removed to reflect current conditions. The key feature in this model was the competent material interface that would determine what type of foundation would be required for proposed construction. By constructing the subsurface model Braun Intertec was able to efficiently compare subsequent design iterations in order to gauge impacts on overall construction costs.
- *U.S. Bank Stadium, Minneapolis, MN* — Utilized current and historic soil boring data to build a subsurface model of impacted soils located at the site. Compared the subsurface model to proposed grading activities to calculate volumes in order to help the Metropolitan Sports Facilities Authority vet bids for removal of the impacted soils.

BRETT BERTRAM

CAD Technician

- *MPCA Contract – Various Sites* — Completed a variety of figures for MPCA projects depicting geologic cross sections, vapor and CWI receptors, sample locations, groundwater and isoconcentration contours, and analytical results.
- *Cristo Rey/Urban Ventures Project, Minneapolis, MN* — Responsible for the creation of figures depicting geotechnical and environmental borings, analytical data, excavation activities, and soil and groundwater contamination plume definitions. Eventually this information was combined into a comprehensive figure that clearly illustrated the data gathered.
- *Vapor Mitigation System Design Layout, Various Sites* — Responsible for the creation of construction documents depicting the plan layout and construction details for underfloor vapor mitigation systems.
- *Highway 53 Reconstruction, Duluth, MN* — Utilized point information in CAD to set up staking information for the drill crews using GPS. The information collected in the field was then imported back into CAD to ensure the accuracy of what was performed in the field.

**While employed by another firm.*

KELLY W. BROWN

Senior Scientist

EDUCATION

B.S., Geological Engineering
University of Minnesota
1985

CERTIFICATIONS

MDH – Asbestos Inspector
No. AI3036 and refesher training

MDH – Asbestos Management Planner
No. AI3036 and refesher training

MDH – Lead Risk Assessor
No. LR188 and refesher training

40-hour HAZWOPER Certification and annual refresher training

Niton X-Ray Fluorescence Analyzer Certification

Mr. Brown has over 30 years of environmental consulting experience specifically related to environmental assessment work. His experience has included completion of numerous Phase I Environmental Site Assessments (ESAs), including many large transportation corridor and multi-property assessments; asbestos and lead-based paint surveys; and hazardous materials surveys and abatement projects. His other areas of expertise include laboratory analysis of asbestos and industrial hygiene monitoring for asbestos and other contaminants, and property transfer assessments. Kelly has worked on all of Peer's larger-scale transportation corridor assessment projects and is very familiar with the technical approach and documentation requirements for these projects. Mr. Brown has substantial experience providing environmental assessment services to public agencies including the Minnesota Department of Transportation (MnDOT), Minnesota Pollution Control Agency (MPCA), the Metropolitan Council, Hennepin County, Ramsey County, Dakota County, City of St. Paul, City of Minneapolis, and numerous other Metro area cities.

PROJECT EXPERIENCE

- *Multiple Active Transportation Corridors, Minnesota Department of Transportation** – Senior environmental professional for many of the projects assigned under current MnDOT contract. Under this contract, completed roadway Phase I ESAs, Phase II investigations and/or construction monitoring for projects in various cities across the State including Ada, Blue Earth, Duluth, Ely, Forest Lake, Kenyon, Lindstrom, Mankato, Nashwauk, Northfield, Rice, Virginia, Waconia, and Waseca, as well as several large-scale roadway corridor/interchange projects in the Twin Cities Metro area. The projects included Identifying and assessing potential environmental concerns within the project corridors that could affect the planned roadway improvements along the corridors and potentially delay construction.
- *Central Corridor Light Rail Transit Corridor (CCLRT), Minneapolis to St. Paul, Minnesota*** – Senior environmental professional for a project for the Metropolitan Council Metro Transit to perform a Phase I ESA of an approximate 9.8 mile locally preferred alignment of the CCLRT between downtown Minneapolis to downtown St. Paul. The purpose of the Phase I was to identify, to the extent possible, any sources of contamination (based on present or former land use) on properties that could impact construction of the CCLRT. The project corridor includes one alternative alignment between Oak Street and 29th Avenue SE in Minneapolis, and two between Cedar and Wacouta in St. Paul.
- *Southwest Light Rail Transit Corridor (SWLRT), Minneapolis to Eden Prairie, Minnesota*** – Senior environmental professional for the project team retained by the Metropolitan Council Metro Transit to perform a Phase I ESA of an approximate 16 mile locally preferred alignment of the SWLRT between

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***While employed by another firm*

downtown Minneapolis to Eden Prairie. The purpose of the Phase I was to identify, to the extent possible, any sources of contamination (based on present or former land use) on properties that could impact construction of the SWLRT. Conducted the assessment work along the corridor and completed numerous MPCA file reviews for sites of potential concern along the proposed SWLRT route.

- *Lake Wobegon Trail, St. Joseph to St. Cloud, Minnesota*** - Senior environmental professional for project team retained by the MPCA to perform a Phase I ESA of an approximate 7.5 mile railroad corridor located between County Road 133 in St. Joseph, Minnesota and the Mississippi River in downtown St. Cloud, Minnesota. The property was being considered for potential development as a railroad corridor and a bicycle/pedestrian transportation corridor (an extension of the Lake Wobegon Trail that currently ends in St. Joseph). Completed the assessment work and reporting.
- *Area Wide Groundwater Studies, Minneapolis and Bloomington, Minnesota*** - Senior Environmental Professional on two area wide groundwater studies completed for Hennepin County and/or the MPCA. The area wide studies were conducted to gather and consolidate information and data related to the extent and source(s) of known plumes of chlorinated volatile organic compounds (VOCs) in groundwater that has been identified on several individual properties located within the study areas. The groundwater VOC plume and related soil-gas contamination issues were increasingly becoming issues for the redevelopment of properties within the study areas. It was foreseen that the area wide study results could be used as a development planning tool for individual study area properties and could be used streamline the amount of site-specific environmental data needed to secure liability assurance letters and regulatory approvals related to property acquisitions and redevelopment.
- *Multiple Asbestos and Lead-Paint Assessments, Minnesota*** - Conducted asbestos assessment surveying, sampling and abatement managing following AHERA, OSHA and EPA guidelines and regulations for several Minnesota School Districts and numerous industrial/commercial entities. Conducted numerous lead paint inspections and risk assessments on several large apartment complexes. Conducted numerous pre-demolition hazardous materials surveys for residential, commercial, and industrial properties and prepared reports presenting survey and sampling results, protocols and recommendations for abatement measures and asbestos management. Project examples include Madison Lofts, Minneapolis, Minnesota; Ames Lake Redevelopment Project, St. Paul, Minnesota; Airport Noise Acquisition/Relocation Project, Richfield, Minnesota; Robbinsdale School Demolition, Robbinsdale, Minnesota; Carleton Place Lofts, St. Paul, Minnesota; Con-Agra, Minneapolis, Minnesota; Delmar Grain Elevators, Minneapolis, Minnesota; Glen Lake Development, Minnetonka, Minnesota; and City of St. Paul Properties, St. Paul, Minnesota.

THOMAS J. EINBERGER JR.

Environmental Technician III

EDUCATION

B.A., Environmental Studies,
Gustavus Adolphus College

CERTIFICATIONS

OSHA 40-Hour Hazardous Waste Operations Certification (29 CFR 1910.120)

OSHA Hazards of Confined Space Entry (29 CFR 1910.146) and refresher training

OSHA Hazards of Fall Protection and refresher training

Minnesota Department of Health
Asbestos Inspector and refresher training
No. AI12224

North Dakota Asbestos Inspector and Refresher training
No. 5394

CP/UN eRail Safe System Badge and refresher training
No. 225502

Mr. Einberger has six years of experience in the environmental consulting field, providing professional consulting services in field monitoring, sampling and related documentation on environmental investigation and cleanup projects. Tom has valuable experience in communication with the contractors on a project while being the eyes and ears for project managers. He also has experience doing house inspections for asbestos and hazardous materials. Through his environmental coursework and training at Braun Intertec, Tom is knowledgeable on the proper use of environmental field monitoring equipment including photoionization detectors, water level indicators, and media sampling procedures. His other responsibilities include proposal assistance, data tabulation, and report preparation assistance.

PHASE II ESA PROJECT EXPERIENCE

- Various projects including Phase II ESAs, LSIs, General Site Assessments in Minnesota – conducted field work at various commercial, residential, and future developments performing testing of soil, water and vapor while on site. Other efforts included geoprobe and hollow stem auger drilling, logging of soils, sub-slab vapor sampling, and working with private and public utilities to clear the sites prior to drilling activities. Once done with field work then assisted in the report writing of the findings at the property.
- *Bloomington Area Wide Contamination Project, Bloomington, MN** — Conducted field work setting up soil gas suma canisters and took water samples to find the extent of contamination in a given radius within Bloomington.
- *Angel Food Mart LSI, Coon Rapids, MN* – Lead field technician performing testing of soil, water and vapor while on site to delineate contamination at the site.
- *Proposed Waters Senior Living, Excelsior, MN* - Lead field technician performing testing of soil, water and vapor while on site to delineate contamination at the site.
- *Mino-bimaadiziwin Redevelopment, Minneapolis, MN* - Lead field technician performing testing of soil, water and vapor while on site to delineate contamination at the site.

REMEDIATION PROJECT EXPERIENCE

- *Buzza Lofts, Minneapolis, MN** — Oversaw the soil excavation of contaminated soils and installation of a stormwater line in the green space. Provided manifests to truck drivers and kept a daily log and pictures of the project's progress.
- *The Penfield, St. Paul, MN** — Oversaw the soil excavation of contaminated soils and provided manifests to truck drivers while keeping a daily log and pictures of the project's progress.
- *Anderson Trucking Service North Woods Cleanup, Waite Park, MN** — Oversaw cleanup of the former Anderson Trucking site and soil excavation of

**While employed by another firm.*

contaminated soil while providing a daily log, pictures, and communication with project manager and contractor.

- *Opus Velo Flats, Minneapolis, MN** — Lead field technician overseeing project while doing a hazardous material survey and sampled for ACM. Oversaw the abatement and excavation of contaminated soils from the site. Provided manifests to truck drivers and kept a daily log journal while taking pictures.
- *Former Gas Stop, Moorhead, MN** — Lead field technician overseeing the soil excavation of contaminated soils from a former gas stop. Kept a daily log and took pictures of the installation of storm water and sanitary drains. Took soil samples and submitted for analytical testing.
- *Old MPS Power Plant, Moorhead, MN** — Lead field technician overseeing the abatement, demolition, soil excavation, removal of hazardous materials, and screening for mercury. Provided professional services for soil sampling, communicated with the project manager and client on progress of project, maintained a daily log, pictures, and paperwork relating to the project while building a professional relationship with the contractor to accomplish the task at hand.
- *100 Hennepin Avenue, Minneapolis, MN* - Lead field technician overseeing the soil excavation of contaminated soils from a former parking lot. Kept a daily log and took pictures of the excavation progress and site overview. Worked with general and sub-contractors to accomplish tasks given. Took soil samples and submitted for analytical testing.
- *Walgreen's Store, Minneapolis, MN* - Lead field technician overseeing the soil excavation of contaminated soils from a former restaurant. Kept a daily log and took pictures of the excavation progress and site overview. Worked with general and sub-contractors to accomplish tasks given. Took soil samples and submitted for analytical testing.
- *Ironclad, Minneapolis, MN* - Lead field technician overseeing the soil excavation of contaminated soils from a former parking lot. Kept a daily log and took pictures of the excavation progress and site overview. Worked with general and sub-contractors to accomplish tasks given. Took soil samples and submitted for analytical testing.
- *1500 Nicollet Avenue, Minneapolis, MN* - Lead field technician overseeing the soil excavation of contaminated soils from a former multi-use development. Kept a daily log and took pictures of the excavation progress and site overview. Worked with general and sub-contractors to accomplish tasks given. Took soil samples and submitted for analytical testing.

D. COLE ERICKSON, PE

Staff Engineer

EDUCATION

B.S., Civil Engineering
Iowa State University

PROFESSIONAL REGISTRATIONS

Professional Engineer
No: 54216

CERTIFICATIONS

40-hour HAZWOPER
Certification and Annual Refresher Training

OSHA 29 CFR 1910.132
Personal Protective Equipment Training

OSHA 29 CFR 1910.134
Respiratory Protection Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

OSHA 29 CFR 1926.502
Fall Protection Training

PROFESSIONAL AFFILITATIONS

American Society of Civil Engineers

Mr. Erickson has over six years of experience in environmental investigation and remediation. He is experienced in chlorinated solvent and petroleum chemical remediation through bioremediation, soil vapor extraction, and pump and treat systems including operation and maintenance of pump and treat systems, bioremediation substrate delivery methods, and soil vapor extraction (SVE) systems. Mr. Erickson's environmental investigation experience includes: groundwater, soil, and soil vapor sampling, well and soil vapor point installation, development, and abandonment; soil boring and test trench logging. Mr. Erickson has worked with the MPCA for the past six years on the existing MPCA technical services contract and is familiar with all aspects of the MPCA risk based site evaluation documents and the MPCA quality assurance program.

PROJECT EXPERIENCE

- *Soil Vapor Intrusion Mitigation System Design, Multiple Sites* –
  Mr. Erickson has designed and overseen the implementation of multiple soil vapor intrusion mitigation systems at various sites across Minnesota. Mr. Erickson has performed pre- and post-construction diagnostic testing of sub-slab depressurization systems in accordance with MCPA guidance documents for vapor intrusion mitigation decision framework.
- *LNAPL Remediation and Recovery, Holiday Station #251, St. Peter, MN* –
  Mr. Erickson was the field engineer for the investigation and remediation of a petroleum release at an active service station in St. Peter, Minnesota. Investigation of the Site indicated a leak of approximately 1,700 gallons of gasoline from an underground transfer pump directly into the ground. Mr. Erickson oversaw multiple injections of a solution containing an in-situ chemical oxidation product. These injections were followed by the vacuum of nearby groundwater monitoring wells to recover gasoline and contaminated water.
- *Site Investigation/Redevelopment, 700 Central Apartments, Minneapolis, MN* -
  Mr. Erickson managed and performed oversight of the investigation and removal of petroleum and non-petroleum contaminated soils to facilitate the redevelopment of a former industrial building in Minneapolis, MN. Mr. Erickson coordinated the implementation of soil vapor controls in the rehabilitated building along with the soil vapor controls implemented in the newly constructed parking garage.
- *MPCA Investigation, Skluzacek Oil, Montgomery, MN* -
  Mr. Erickson performed a utility backfill investigation near the former gas station. The work consisted of sub-surface investigation inside a state highway presenting traffic control challenges. The investigation used direct push and hand auger methods to ensure safety while boring near utilities. Mr. Erickson oversaw the site closure upon completion of the investigation
- *MPCA Investigation, Northern Stacks, Fridley, MN* –
  Designed, implemented and performed operation and maintenance (O&M) of SVE systems at a former military research, development and manufacturing facility. Historical releases of VOCs resulted in soil, soil vapor and groundwater

impacts at the Site. Mr. Erickson also prepared annual reports documenting the O&M procedures. Performed multiple remedial investigations across a large multi-parcel property that formerly contained the Naval Industrial Reserve Ordnance Plant (NIROP). Soil, groundwater, and vapor sampling was performed across the 122-acre site using various methods including push-probe and hollow stem auger drilling as well as test pits. Oversaw demolition, utility work, soil correction activities, and on-Site soil treatment for the brownfields redevelopment. Completed the installation and development of monitoring wells on Site as part of the replacement of previously abandoned monitoring wells for the US Navy.

- *Fertilizer Manufacturing Site Cleanup/Redevelopment, Howe Chemical, Brooklyn Center, MN* - Field engineer for the cleanup and redevelopment of a 5-acre property with widespread agricultural chemical contamination and isolated petroleum contamination. The property was regulated by the Minnesota Department of Agriculture and both the MPCA's Voluntary Investigation and Cleanup Program and Petroleum Remediation Program. Services at this site included the preparation of an updated Response Action Plan, oversight of excavation and disposal of both chemical and petroleum-contaminated soil, design and oversight of vapor intrusion mitigation controls in the new building, and preparation of the final implementation report.
- *MPCA Phase II ESA, Universal Plating, Minneapolis, MN* -
  Mr. Erickson supported in the investigation of a former plating facility. Mr. Erickson assisted in preparing the sampling and analysis plan for the Phase II Environmental Site Assessment (ESA). The Phase II ESA included soil borings, test trenches, soil vapor probes, and temporary groundwater wells. The results of the Phase II ESA identified impacts to soil from metals, trichloroethylene (TCE) and PCE, and impacts to soil vapor and groundwater from TCE. Mr. Erickson compiled and assisted in interpretation of the data and completed a Phase II ESA report.
- *MPCA Investigation, Fast Snowmobile Site, Eveleth, MN*
  Managed and performed the execution of an additional sub-surface investigation of the property previously used as snowmobile assembling facility. Mr. Erickson performed the data analysis and report preparation including making recommendations for future objectives. Mr. Erickson oversaw the abandonment of the on-site monitoring wells and the closure of the site.
- *City Groundwater Assessment, Lakeland Groundwater Contamination, Lakeland, MN* – Coordinated and oversaw residential groundwater sampling as part of an ongoing Minnesota Pollution Control Agency (MPCA) assessment of impacted groundwater. Also coordinated and sampled soil vapor throughout the city of Lakeland to assess vapor impacts from the groundwater plume being studied.

CASEY M. FARRELL

Geographic Information Science Specialist

EDUCATION

M.S., Geographic Information Science,
Saint Mary's University of Minnesota

B.A., Geography,
B.A., Economics,
University of Wisconsin, Eau Claire

PROFESSIONAL REGISTRATIONS

ESRI GeoNet
ArcGIS Online
Arc2Earth

CERTIFICATIONS

GIS Graduate Certificate in GIS

PROFESSIONAL AFFILIATIONS

MN GIS/LIS Consortium

Casey has ten years of professional Geographic Information Systems (GIS) experience and works as a GIS specialist on the Geospatial Operations group at Braun Intertec. He has a background in geospatial analysis, customer service and data management. He supports internal clients and the Geospatial Operations group with his expertise using ESRI software.

Before joining Braun Intertec, Casey was a graduate student at Saint Mary's University of Minnesota working on geospatial projects to fulfill coursework requirements. His previous job experiences include being an Outdoor Educator in Sonoma County, CA and a Recreation Leader for the City of St. Paul Parks and Recreation Department. His most recent role was with Xcel Energy in Supply Chain Support where he coordinated the maintenance of safety documentation with more than 1,000 contractors. In his academic and professional careers, Casey has developed excellent communication skills and posesses a desire to learn new things, critical traits in order to succeed in the Geospatial Industry.

PROJECT EXPERIENCE

- *Mosaic Savage Facility, Savage, MN* — Mosaic Crop Nutrition, LLC levee construction, building demolition and environmental assessments. The geospatial operations group has managed all sensitive environmental and boring data for the Mosaic Savage Facility site during the demolition, certification and construction phases of their building and levee projects. Casey has been the geospatial operations point of contact for this project, managing all data and maps for the many phases of this complex project. (January 2016-present)
- *Concrete Assessment, Minneapolis, MN* — University of Minnesota evaluation of all exterior concrete surfaces in each of their five campus areas. The geospatial operations group set up an online mapping application to collect concrete distresses. Casey's roles included creation of polygon segments based on the distresses, square area and type, and joining the distress data to the polygon segments so that PCI scores could be calculated for each segment and ultimately each campus. (January 2016 – April 2017)
- *Pavement Evaluation, Andover, MN* — Anoka County Highway Department evaluation of a set of roads. The Geospatial Operations group provided an innovative way to evaluate the roads with an online editable map using ArcGIS Online. Casey's role included preparing the roads data to be evaluated by field technicians and setting up study segments. This task required attention to detail and careful measurements of the roads dataset. He continues to analyze and summarize the data that was collected. (October 2014- January 2016)
- *Odell Wind, Geronimo Energy, Windom, MN* — A final geotechnical evaluation needed to be done for the Odell Wind Farm construction. Borings locations

**While employed by another firm.*

were altered from a few years ago and needed to be updated on the maps in order to complete the meets needed for the evaluation. Casey, quickly managed the new data, made the updates and delivered new maps for this time-sensitive project. (September 2014-October 2014)

- *Texas Department of Public Safety, Brownsville, TX* — A Phase I Environmental Site Investigation was completed on a large site in the deep southern part of Texas. Part of the investigation was to use an Unmanned Aerial System (UAS) to take pics of the current condition of the land that was not accessible by our field crews on foot on in their vehicles. Casey helped processed the UAS data using Drone2Map an ESRI software product that creates orthomosaics imagery and other flight features.
- *MPCA Contract – Various Sites* – Completed a variety of figures and met MPCA standards for projects depicting vapor intrusion, vapor and CWI receptors, soil boring/vapor sample locations, groundwater and isoconcentration contours, and analytical results.

BRAUN INTERTEC

RICHARD M. FONS

Environmental Technician III

EDUCATION

B.S., Geoscience-Environmental Science, Winona State University

CERTIFICATIONS

OSHA 40-Hour Hazardous Waste Operations and Emergency Response Certification (29 CFR 1910.120)

OSHA 8-Hour HAZWOPER annual refresher training

Annual OSHA 8-Hour Hazards of Confined Space Entry (29 CFR 1910.146)

Minnesota Department of Health Asbestos Inspector

Minnesota Department of Health Asbestos Inspector 8-Hour annual refresher training

PROFESSIONAL AFFILIATIONS

Geological Society of America

Mr. Fons has more than six years of environmental consulting experience. Rich provides field monitoring, sampling, and related documentation assistance on Phase II environmental investigations, construction and demolition sites, and redevelopment/Brownfields remediation projects. He has excellent field experience overseeing remediation personnel, managing implementation of response actions, and collecting field samples through a variety of different methods. Rich also assists with data tabulation and analysis, spreadsheet manipulation, report preparation, and environmental equipment maintenance. He has experience in using various specialized instruments and equipment to collect samples and data in the field. Additionally, he collaborates with colleagues to complete hazardous materials surveys on buildings undergoing renovation or demolition.

PROJECT EXPERIENCE

- *Former Pine Street Dump, Hastings, MN**— Rich completed field sampling of soil and soil vapor at this closed former dump site. He was involved with collecting samples during this Minnesota Pollution Control Agency (MPCA) project since 2011. Rich assisted in conducting a series of test pits on the dump property to assess the limits of the dump. As the project progressed, he collected soil vapor samples from the property and the surrounding homes and documented the installation of vapor mitigation systems as part of the remediation phase of this project. (June 2011 to present)
- *Bloomington Area-Wide Contamination Study/Lyndale Avenue Corridor, Bloomington, MN**—Rich has been involved with a large portion of this MPCA project by collecting field samples through a variety of methods. He assisted in collecting soil, groundwater, and soil vapor samples to delineate a chlorinated solvent plume concentrated in a residential and commercial area of Bloomington. Rich managed the completion of soil borings, oversaw installation of a series of temporary wells for groundwater sampling, and facilitated the completion of an extensive network of soil vapor sampling locations. Once the extent of the plume was evaluated, he collected soil vapor samples from beneath and within dozens of homes and businesses in the area as part of pre-mitigation work for this ongoing project. (May 2013 to present)
- *Former Pure Oil Bulk Facility Property, Excelsior, MN*—This property was formerly home to a bulk oil storage facility and has since been developed by several different commercial businesses. Rich was the primary environmental field scientist for this MPCA project assisting with collection of mainly soil vapor samples, but also soil and groundwater samples at the property. He aided in the collection of Phase II investigation data for the purpose of delineating the extent of a chlorinated solvent plume originating in the area. Through a series of soil borings, indoor air samples, and sub-slab soil vapor samples from beneath on-site and surrounding structures, Rich was able to collect valuable information for use in establishing a mitigation plan for the homes and businesses in the area. (August 2015 to present)

**Project began during employment with another firm.*

- *Former Pine City Mill, Pine City, MN*—Rich was part of numerous environmental investigations at this former mill property to assess soil and groundwater contamination originating from past milling operations. He was involved with collection of soil and groundwater samples for analytical testing on the property and on adjoining parcels. He also collected samples using non-traditional technical methods and specialized equipment. Rich conducted documentation of hazardous wastes, oversaw installation of permanent groundwater monitoring wells, completed a contamination receptor survey of the local area, and assisted with a hazardous materials survey of the property. He was a part of this multi-faceted MPCA project from initial investigation. (December 2015 to present)
- *Hennepin County Medical Center Expansion, Minneapolis, MN*—The downtown Minneapolis hospital redeveloped an adjacent parcel of land for expansion purposes. Rich was the primary environmental professional managing the cleanup response actions for this project. Several buildings were demolished in preparation for construction of the new medical center building. Rich provided full-time monitoring, documenting, and environmental sampling services throughout the course of the project. Soil remediation included removal of 45,500 tons of contaminated fill soil, which was disposed at a landfill. He also collected sub-slab soil vapor samples once a vapor mitigation system had been installed in the building. (January 2016 to September 2017)
- *Former Hilger Transfer Site/Tiller Mine, Maple Grove, MN*—This 13-acre site was targeted for redevelopment. Used as a former dump site and aggregate mine, this site was known to have contamination issues. Rich oversaw the excavation of a series of test pits to investigate the site and collect environmental samples for laboratory analysis. The site contained large amounts of household and industrial waste buried from past site operations. He provided critical Phase II brownfields services including documentation, sample collection of materials for asbestos analysis, and field log preparation. (November 2016)
- *Fridley Public Works Facility, Fridley, MN*—Rich collaborated with a colleague to complete a large-scale hazardous materials building inspection survey on a group of about 15 buildings that were slated for demolition. Hazardous materials were classified and documented. He assisted in collection of building materials for asbestos analysis and associated documentation. (April 2017)
- *Union Flats Redevelopment, St. Paul, MN*—Rich was the primary environmental professional overseeing the redevelopment of a former bulk fuel manufacturing and storage site. This urban site contained large amounts of known soil and groundwater contamination from past site operations. He managed 38,000 tons of contaminated soil and demolition debris removed from and disposed off-site at a landfill. Rich directed contaminated soil remediation activities while performing other critical field services like full-time monitoring, environmental sampling of soil, groundwater, and other materials, asbestos abatement oversight, vapor mitigation system oversight, and environmental documentation on this large-scale multi-faceted project. (September 2017 to present)

**While employed by another firm.*

STEVEN C HODEK

Senior Scientist

EDUCATION

B.S., Nartural Resources & Environmental Studies, Water Resource Management
University of Minnesota, Twin Cities

CERTIFICATIONS

OSHA 29 CFR 1910.120
40-Hour HAZWOPER Certification and Annual Refresher Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

Mr. Hodek has worked in the environmental consulting field since 1998. His primary focus is the design and implementation of monitoring programs for Inflow/Infiltration studies, wastewater, stormwater, groundwater and surface water. Mr. Hodek manages SampleTech, an operating division of Braun Intertec Corporation. SampleTech is an environmental field services operation focusing on data acquisition, management and reporting.

Mr. Hodek has worked with municipalities and engineering firms in helping them perform their Sanitary Sewer Evaluation Studies and Stormwater Monitoring Programs by: monitoring station design, equipment installation and data acquisition. Mr. Hodek has performed industrial wastewater monitoring for over 150 different clients involving over 300 confined space entries and the use of ISCO samplers and flow meters. He has sampled over 800 monitoring wells according to MPCA guidelines, using submersibles (12-volt/Redi-flo operated) and low flow bladder pumps. His experience with managing environmental monitoring programs at landfill sites entails client contact, project coordination with the facility, project setup, QA/QC review and report writing.

PROJECT EXPERIENCE

- *Former Metallurgical Facility, Minneapolis, MN – 4/13 – present*
  A network of twenty five monitoring wells, are monitored on a quarterly basis using low flow sampling techniques and procedures. Mr. Hodek is responsible for project setup and preparation, data management & reporting, and QA/QC review.
- *Hubbard County - North & South Demo Landfills - 4/07 - present*
  Networks of four and six monitoring wells respectively are sampled on a semiannual basis. Mr. Hodek has been the Project Manager since acquiring this project and his primary duties are project setup and preparation, data management & reporting, and QA/QC review.
- *Lyon County SW-23 Landfill - 4/07 - present*
  A network of eighteen monitoring wells, two leachate tanks, eight lysimeters and six surface water locations are sampled on a quarterly basis. Serpentine air monitoring is also completed on the working face of the landfill each quarter. Mr. Hodek has been the Project Manager since acquiring this project and his primary duties are project setup and preparation, data management & reporting, and QA/QC review.
- *Polk County SW-124 Landfill - 4/08 - present*
  A network of seventeen monitoring wells, two leachate tanks, seven lysimeters and two surface water sampling points are monitored on a semi-annual basis. Mr. Hodek has been the Project Manager since acquiring this project and his primary duties are project setup and preparation, data management & reporting, and QA/QC review.

MICHELLE M. HUBANKS

Quality Manager

EDUCATION

B.S., Chemistry
Santa Clara University

CERTIFICATIONS

Certified Hazard Communication

40-hour HAZWOPER Certification

ASQ Certified Manager of Quality/Operational Excellence

PROFESSIONAL AFFILIATION

American Society of Quality (ASQ)

Ms. Hubanks has more than 20 years of professional experience in quality management. Michelle is responsible for the planning, design, implementation and management of a corporate wide quality management program and assisting with the quality management program of the environmental consulting group.

Michelle has extensive experience creating, implementing, and managing a Quality Management Program to comply with ISO, FDA, state and national accreditation requirements. She maintains knowledge of EPA methodologies, Standard Method, NIOSH and OSHA methods. Michelle also has a proven abilitly to continue open communication and positive relationships with regulartory personnel, external clients and laboratory personnel.

QUALITY MANAGEMENT EXPERIENCE

As quality assurance coordinator, Michelle's duties include the following:

- Provide performance management components for personnel, including internal audits, QA training, corrective action/preventative action plans, quality documents and proficiency testing samples
- Conduct data validation reports using CLP National Functional Guidelines
- Prepare Quality Assurance Project Plans for internal and external clients
- Obtain and maintain multiple state and national laboratory accreditations, including NELAP, AIHA and NVLAP
- Establish and maintain QA/QC requirements
- Maintain/review laboratory participation in proficiency testing programs
- Prepare and update QA manuals
- Assure that all QA/QC records are being properly maintained
- Maintain documentation including training records
- Train laboratory staff on QA/QC requirements
- Monitor QA/QC measures

Michelle has demonstrated the ability to work well with clients by monitoring the day-to-day status of existing projects, keeping an eye on project budgets, coordinating schedules, staying in touch with clients throughout the project process, and sticking to the client's desired schedule.

KENNETH A. LARSEN, P.E., P.G.

Principal Engineer

EDUCATION

B.S., Geological Engineering
University of North Dakota
1988

PROFESSIONAL REGISTRATIONS

Registered Professional Engineer, Minnesota, Iowa, Wisconsin and Texas
Registered Professional Geologist, Minnesota and Wisconsin

CERTIFICATIONS

OSHA 40 Hour Hazardous Waste Operations Training (29 CFR 1910.120) and annual refresher training

PROFESSIONAL AFFILIATIONS

Association of Groundwater Scientists and Engineers
Minnesota Groundwater Association

Mr. Larsen is a registered professional engineer and professional geologist with over 28 years of environmental consulting experience. Mr. Larsen routinely serves as a principal consultant to clients on projects involving contaminant release investigations, remediation, regulatory compliance, and hazardous materials management. He has served as the Senior Project Manager for hundreds of Phase I Environmental Site Assessment and Phase II Investigations for industrial, commercial, agricultural and transportation corridor sites located throughout the Midwest. Mr. Larsen's specific experience includes environmental investigations and cleanups for both petroleum-related and non-petroleum-related contamination, soil and ground water remediation, environmental due diligence assessment, and Resource Conservation and Recovery Act (RCRA) facility closures. Mr. Larsen has substantial experience providing environmental consulting services to public agencies including the Minnesota Pollution Control Agency (MPCA), Minnesota Department of Transportation (MnDOT), the Metropolitan Council, Hennepin County, Ramsey County, Dakota County, City of St. Paul, City of Minneapolis, and numerous other Metro area cities.

MANAGEMENT EXPERIENCE

Mr. Larsen was previously the co-owner, Vice President and Chief Financial Officer at Peer Engineering, Inc., a 23-person environmental consulting firm acquired by Braun Intertec Corporation in March 2015. Mr. Larsen began at Peer Engineering in 1992, and worked in a management capacity at the firm starting in 1995. His role the firm was multi-faceted and included a variety of financial management, business development and technical staff management responsibilities.

PROJECT EXPERIENCE

- *Multiple Active Transportation Corridors, Minnesota Department of Transportation* — Mr. Larsen has been the Senior Project Manager for MnDOT projects located across the State of Minnesota. These projects have included completion of roadway Phase I environmental site assessments (ESAs), Phase II investigations and/or construction monitoring for projects in various cities across the State including Ada, Lindstrom, Virginia, Moorhead, Blue Earth, Northfield, Waseca, Waconia, Mapleton, Mankato, Duluth, Winona as well as several large-scale roadway corridor/interchange projects in the Twin Cities Metro area. The projects included Identifying and assessing potential environmental concerns within the project corridors that could affect the planned roadway improvements along the corridors and potentially delay construction. (2005 – present)
- *Proposed MLS Stadium, St. Paul, Minnesota* — The project was completed on a fast track basis on behalf of the Minnesota United Soccer Club and in collaboration with the City of St. Paul, Saint Paul Port Authority and

Metropolitan Council. Mr. Larsen served as the Senior Project Manager for the environmental components which included a Phase I ESA of the entire "Superblock" of assembled properties, a comprehensive Phase II ESA, and a Response Action Plan/Contingency Plan (RAP/CCP) outlining the environmental requirements for redevelopment, and support with cleanup grant application preparation. The project also included completion of a comprehensive geotechnical evaluation requiring significant collaboration and coordination with the environmental efforts. The entire scope of work was completed in less than four months which included review and approval of the RAP by the MPCA. To date, our environmental investigation and inspection work has assisted grant preparers in requesting and obtaining $3.5 million toward environmental cleanup for the project. Mr. Larsen is currently managing the construction-related environmental response actions being completed during construction and providing as needed engineering support to the project team. (2016 - Present)

- *Brownfield Remediation, St. Paul and Minneapolis, Minnesota* — Mr. Larsen served as Senior Engineer for the remediation of a former automobile salvage yard contaminated with lead, PCBs and petroleum. Mr. Larsen designed the technical cleanup approach and prepared required regulatory submittals which included investigation reports, cleanup plans and engineering specifications. He managed the implementation of cleanup activities which consisted of the excavation, on-site treatment and off-site disposition of approximately 50,000 tons of lead and PCB impacted material, and approximately 10,000 tons of soil impacted with petroleum and polynuclear aromatic hydrocarbons. Mr. Larsen prepared cleanup documentation reports for submittal to the Minnesota Pollution Control Agency (MPCA) Site Response Section. The MPCA subsequently delisted the site from the State Superfund list and the site is now redeveloped. (1996 –1998)

- *Koch-Mobil Bulk Oil Facilities, St. Paul, Minnesota* — Mr. Larsen has provided on-going environmental consulting services to the City of St. Paul Department of Planning and Economic Development related to the acquisition and redevelopment of two contiguous properties formerly known as the Koch and Mobil bulk oil facilities. The following types of work were completed by Mr. Larsen in relation to the properties: compiled comprehensive reviews of existing environmental investigation and remediation system data; completed supplemental Phase I and Phase II environmental site assessments as the acquisition process proceeded; prepared environmental cost estimates for various residential and commercial redevelopment scenarios; provided technical support during the City's condemnation proceedings with ExxonMobil related to the former Mobil Property; prepared Response Action Plan/Development Response Action Plan documents addressing remediation requirements for redevelopment related to the first phase of development of the 22-Acre, former Koch Tank Farm Parcel; provided environmental monitoring, sampling and documentation services during installation of public

infrastructure related to the 22-Acre, former Koch Tank Farm Parcel; prepared a Response Action Plan and design specifications to control vapor intrusion in several new buildings constructed by a non-profit organization on a portion of the former Koch Tank Farm Parcel; attended public meetings and provided technical support related to the preparation of the Environmental Assessment Worksheet for the project. Braun Intertec is currently part of a technical team assisting the City of St. Paul with the operation, maintenance and monitoring associated with the existing remediation system at the former Mobil property, and to provide on-going technical assistance on the project to facilitate redevelopment of the property and final regulatory closure related to remaining contamination. (1997 – 2016)

- *Industrial Facility, Iowa* — Mr. Larsen provided construction management services during a closure of a RCRA regulated hazardous waste storage building and surface impoundment. He prepared reports documenting procedures and protocol used during closure for submittal to U.S. EPA Region VII. He also prepared RCRA Facility Investigation (RFI) Work Plan that summarized available published and site specific geologic and hydrogeologic data, evaluated existing environmental data and outlined the additional investigation requirements necessary to fully characterize the nature and extent of soil, bedrock and groundwater impacts. Mr. Larsen directed implementation of the RFI which included final report preparation which was subsequently approved by the U.S. EPA Region VII. He directed completion of a Corrective Measures Study (CMS) for the facility which evaluated the feasibility of multiple cleanup alternatives and provided related implementation costs. EPA approval of the CMS report was obtained. Mr. Larsen prepared the Corrective Measures Implementation (CMI) Workplan that was approved by EPA and was successfully used to clean up the site and facilitate RCRA closure. (1988 – 2006)

STEPHEN A LUTH

PROJECT SCIENTIST

EDUCATION

B.S., Geography,
Minnesota State University, Mankato

M.B.A.
Globe University

CERTIFICATIONS

OSHA 40-Hour Hazardous Waste Operations Certification (29 CFR 1910.120)

Minnesota Department of Health Asbestos Inspector

Minnesota Department of Health Asbestos Site Supervisor

Minnesota Department of Health Lead Risk Assessor

Minnesota Department of Health Lead Project Designer

NIOSH 582 Sampling and Evaluation of Airborne Asbestos

Niton X-Ray Fluorescence Analyzer Certification

Mr. Luth is an environmental professional with more than 11 years of environmental consulting experience. Steve has completed a wide variety of asbestos and lead-based paint inspections, indoor air quality investigations, and on-site project management of asbestos and lead-based paint abatement projects. He has conducted over one hundred pre-demolition hazardous materials inspections for residential, public, commercial, and industrial properties; prepared reports presenting inspection and sampling results, protocols and recommendations for abatement measures and asbestos management. Steve has also completed over one hundred lead risk assessments of residential properties for public entities; prepared reports presenting the assessment results and recommendations for managing lead hazards. He has developed and written abatement designs for lead-based paint abatement projects. He has Phase I and Phase II Environmental Site Assessments (ESA) experience in brownfield redevelopements. He has managed and overseen all aspects of building renovation and demolition in turnkey project including; abatement and demolition observation, scheduling, bid assistance, budgeting, and reporting.

PROJECT EXPERIENCE

- *A-Mill Artist Lofts, Minneapolis, MN* — Steve managed the abatement as well as performed the sampling of newly identified suspect asbestos containing materials as the renovation progressed.
- **Bishop Henry Whipple Federal Building-GSA, St. Paul, MN*
- **Minneapolis/St. Paul (MSP) Airport Expansion, Minneapolis/St. Paul, MN*
- *Multiple sites - *St. Paul Public Housing, Ramsey County Tax Forfeited Land, Minnesota Department of Transportation,Target Corporation.*
- *333 of the Park, St. Paul, MN – Major conversion from historic office space to residential loft apartments. Steve managed the lead and asbestos abatement.*
- *MPCA sites – Garry's Furniture, Andst, and Furrey redevelopements, Frazee, MN*
- *Millworks Lofts, Minneapolis, MN* - Steve managed the abatement and lead-based paint removal as well as performed the sampling of newly identified suspect asbestos containing materials as the renovation progressed.
- *Pioneer Press Apartments, St. Paul, MN (ongoing) - Major conversion from historic office space to residential apartments. Steve manages the lead and asbestos abatement and other hazardous material removal.*

PREVIOUS WORK EXPERIENCE

- *Liesch Associates* — Steve's responsibilities included on-site regulation authority and air monitoring. Completed inspections and collected asbestos, mold, lead, water, and soil samples for lab analysis for demolition and renovation activities. Performed lead risk assessments as an MDH licensed assessor and inspector. (2011–2013)

**While employed by another firm.*

- *PSI Inc.* — Steve's responsibilities included on-site regulation authority and air monitoring. Collected asbestos, mold, lead, water, and soil samples for lab analysis during hazardous waste surveys for demolition and renovation activities. Performed lead risk assessments as an MDH licensed assessor and inspector. (2010–2011)
- *Nova Consulting* — Steve performed Phase I ESAs, Phase II ESAs, property condition assessments, and asbestos surveys of a wide variety of commercial and public properties as an environmental professional. (2007–2009)

CHRISTOPHER D. MCELLIGOTT, PE

Senior Engineer

EDUCATION

B.S., Geological Engineering
M.S., Geological Engineering
University of Minnesota

PROFESSIONAL LICENSES, CERTIFICATIONS, AND REGISTRATIONS

Professional Engineer
MN - No. 21123
WI - No. E-29198-006
IA - No. 15006
KS – No. 26136

National Radon Proficiency Program
Residential Measurement Provider
No. 107286 RT
Residential Mitigation Provider
No. 107666 RMT

OSHA 40-Hour HAZWOPER, 8-Hour Refresher, Waste Site Supervisor

PROFESSIONAL AFFILIATIONS

American Association of Radon Scientists and Technologists

Minnesota Ground Water Association

Mr. McElligott's primary responsibilities include identifying and evaluating remedial alternatives; the planning, design, preparation of bid specifications, and construction management of soil, groundwater and soil vapor remediation systems at contaminated sites; and developing and coordinating remedial activities to meet the requirements of government regulators, site owners, architects and general contractors on brownfield site redevelopment projects. His experience includes design and implementation of soil vapor intrusion mitigation, radon mitigation, soil vapor extraction, and bio-venting remediation systems. He has designed, and prepared construction plans and specifications for VOC vapor, methane and radon mitigation systems and components installed in over 100 buildings, including retail/commercial, school/day care, healthcare, government, multi-family residential, and recreational properties.

SELECTED PROJECT EXPERIENCE

- Designed, and prepared plans and specifications for vapor mitigation systems or system components for new buildings during construction including:
    - Baldinger Bakery, a 145,000 sq. ft. commercial facility in St. Paul, MN
    - Sam's Club and Walmart stores in Brooklyn Center, Roseville and St. Louis Park, MN, and Madison, Menomonee Falls, South Milwaukee and West Milwaukee, WI
    - Shingle Creek Crossing, Brooklyn Center, MN – multiple retail buildings
    - BMW of Minnetonka, Minnetonka, MN – building, parking lot and green space methane mitigation
    - Children's Hospitals & Clinics Minneapolis Campus, Minneapolis, MN – ambulatory care center and parking ramp
    - Hennepin County Medical Center, Minneapolis, MN – ambulatory outpatient specialty center
    - Regions Hospital, St. Paul, MN – Northeast Section building
    - Metropolitan Council, Cedar Grove Transit Station, Eagan, MN
    - Lowertown Ballpark, St. Paul, MN – all buildings
- Designed, and prepared plans and specifications for radon resistant construction or active radon mitigation systems at various properties including:
    - 72 Cesar Chavez mixed-use development, St. Paul, MN
    - 66 West Apartments, Beacon Interfaith Housing Collaborative, Edina, MN
    - St. David's Center Child & Family Development, Minnetonka, MN
    - Crest Ridge Senior Housing, Minnetonka, MN
- *City of Minneapolis, Minneapolis Community Development Agency (MCDA), Former Soo Line Railroad Yards, Minneapolis, MN* — Lead design engineer and remediation project manager at this large brownfield site with multiple-source

petroleum product contamination. Remediation systems installed included groundwater extraction/free-phase product recovery systems, in-situ soil bioventing systems, and an ex-situ/in-situ bioremediation system. Remediation was coordinated with new construction activities in portions of the site, which allowed MCDA to proceed with site redevelopment.

- *Minnesota Pollution Control Agency, Former A.C. Oil Site, Clearbrook, MN* — Designed and managed the installation of a groundwater pump and treat, free-phase product recovery and soil vapor extraction system to remediate subsurface hydrocarbon contamination at this abandoned site. The system was designed to remediate the source of a dissolved hydrocarbon plume that had threatened the municipal groundwater supply.
- *United States Air Force (USAF), Site 7, Minneapolis/St. Paul International Airport* — Evaluated options for enhancing the performance of an existing groundwater pump and treat/AVGAS product recovery system. The upgraded design included adding an additional extraction well to the system, installing improved equipment, and adding vacuum-enhanced recovery to the wells.
- *City Fire Station, Spring Lake Park, MN* — Designed and managed installation of a soil vapor extraction and groundwater/free-phase product recovery system at the site of a former service station. In addition, designed an underfloor venting system to mitigate intrusion of gasoline vapors into a new fire station constructed at the site. Remediation system installation was coordinated with the architect of the fire station, allowing the project to proceed on schedule.
- *Convenience Store, Wyoming, MN* — Designed and managed the installation of a vapor extraction system underneath the floor slab of an existing convenience store. The system was designed to mitigate gasoline vapors that had been entering the store from under the foundation. Using an innovative installation method, the horizontal vapor extraction piping was installed under the floor slab from the outside of the building, thereby satisfying the client's requirement that the store remain open during system installation.
- *Minnesota Pollution Control Agency, State-Lead Superfund Sites** — Developed and implemented remedial investigation/feasibility studies, and prepared remedial investigation/feasibility study reports for the MPCA and the U.S. Environmental Protection Agency under a multi-site contract with the MPCA. Sites on which he has worked include the LaGrande Sanitary Landfill and Oak Grove Sanitary Landfill National Priority List (NPL) Superfund sites. He also helped design a groundwater extraction system proposed for a NPL Superfund groundwater contamination site in Long Prairie, MN.
- *Paxton Avenue Lagoons, Chicago, IL** — Served as an on-site representative for the Illinois Environmental Protection Agency at a soil incineration project at this hazardous waste site.
- *Petroleum Exploration and Production sites, Western and Southwestern U.S.** — Senior field engineer and field engineer for Schlumberger Well Services, a petroleum industry service firm. He operated and maintained a well site geophysical field service unit, and acquired and interpreted geophysical well log data for petroleum exploration and production companies.

CHRISTOPHER D. MCELLIGOTT, PE

Senior Engineer

**While employed by another firm.*

TIM H. MOLITOR, GIT

Staff Scientist

EDUCATION

B.S., Geology
University of Wisconsin – Eau Claire

PROFESSIONAL REGISTRATIONS

Geologist in Training
No: 147446

CERTIFICATIONS

40-hour HAZWOPER
Certification and Annual Refresher Training

OSHA 29 CFR 1910.120
Hazmat Training

OSHA 29 CFR 1910.132
Personal Protective Equipment Training

OSHA 29 CFR 1910.134
Respiratory Protection Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

OSHA 29 CFR 1926.502
Fall Protection Training

MDH: Accredited Asbestos Inspector
No: AI12437

PROFESSIONAL AFFILITATIONS

American Institute of Professional Geologists

Geological Society of America

Mr. Molitor is responsible for coordinating and overseeing the implemenation of various corrective actions including: brownfield redevelopment, excavation oversight, construction dewatering, onsite treatment of impacted soil and disposal of soil impacted with various contaminants including metals, petroleum, solvents, and other hazardous materials. As part of response action implementation, Tim is experienced in accurate field documentation, overseeing subcontractors' compliance with specifications and plans, and acting as onsite advocate for clients. Besides response action implementation duties, Tim is knowledgable in peforming investigative field methods including groundwater, soil, and vapor sample collection for laboratory analyses. Tim is also experienced within hazardous materials assessments and assisting with asbestos related assessments as a MDH-accredited asbestos inspector.

PROJECT EXPERIENCE

- *Northern Stacks, Fridley, MN* – Performed multiple remedial investigations across a large multi-parcel property that formerly contained the Naval Industrial Reserve Ordnance Plant (NIROP). Soil, groundwater, and vapor sampling was performed across the 122-acre site using various methods including push-probe and hollow stem auger drilling as well as test pits. Oversaw demolition, utility work, soil correction activities, and on-Site soil treatment for the brownfields redevelopment. Completed the installation and development of monitoring wells on Site as part of the replacement of previously abandoned monitoring wells for the US Navy. (August 2013-Present)
- *KwikTrip Development, Oakdale, MN* — Oversaw excavation of impacted soils and screened soils. Oversaw the dewatering of the Site for installation of new petroleum fuel tanks and monitored stormwater drainage from the dewatering. Screened and logged the soils under footing to determine potential reuse. (August – September 2013).
- *BP-Amoco Remodel, Golden Valley, MN* — Performed original site assessment and collected analytical soil samples from test pits to assess petroleum contamination on Site. Oversaw excavation and disposal of impacted soils that included soil headspace screening and confirmation soil sampling as part of site redevelopment. (September – October 2013).
- *Noble Parkway Park & Ride, Brooklyn Park, MN* — Oversaw excavation of previously contaminated site as part of due diligence for a nearby contaminated groundwater plume. Excavation oversight and screening while soil was removed within area of remediated groundwater. Sampled soil and geothermal water from geothermal borings that were installed on the edge of the remediated groundwater plume. (September – October 2013).
- *Five15 on the Park, Minneapolis, MN* — Performed original site assessment and soil sample collection when impacted soil was encountered. Oversaw excavation of contaminated soils and debris while manifesting the soil being hauled off Site. Conducted sampling for fill material to be reused as well as confirmation sampling under building grade to comply with the MPCA. (May – July 2014).

- *Westside Center, St. Louis Park, MN* — Performed original site assessment, including geotechnical borings and analytical soil sample collection, as well as test pit investigations. Oversaw complete excavation of unsuitable soils across the Site (debris laden, geotechnically unsuitable, or impacted). Assisted with geotechnical evaluations across portions of the Site under a professional engineer. Conducted confirmation sampling of all utility trenches, within engineered waterways, and beneath the building addition for MPCA documentation. Completed the construction contingency plan (CCP) implementation report and analytical data review once work was completed. (September 2014 – January 2016)
- *807 Broadway Street, Minneapolis, MN* – Oversight for the removal of two 10,000 gallon and one 16,500 gallon underground storage tanks (USTs) as part of the Site redevelopment. Work involved environmental oversight, soil headspace screening, and confirmation soil sampling. (October 2014).
- *Lakeview Golf Course, Orono, MN* – Performed environmental site assessment of a former golf course to assess mercury impacts across the entire Site. Oversaw the removal of soils that contained mercury with levels that exceeded either residential soil reference values (SRVs) or Tier 1 soil leaching values (SLVs). Collected analytical soil samples to ensure complete removal of soils with elevated mercury impacts for the proposed residential development of the Site. (October 2014-July 2015).
- *Lakeland Groundwater Contamination, Lakeland, MN* – Coordinated and oversaw residential groundwater sampling as part of an ongoing Minnesota Pollution Control Agency (MPCA) assessment of impacted groundwater. Also coordinated and sampled soil vapor throughout the city of Lakeland to assess vapor impacts from the groundwater plume being studied. (November 2014-Present).
- *Former Clothing Care Cleaner, Rochester, MN* – Oversaw environmental site investigation of a former dry cleaner for the MPCA. Work included collection of groundwater, soil, and vapor analytical samples to assess potential down gradient risks from the chlorinated VOCS known to have impacted groundwater on Site. (December 2015-April 2016).
- *MLS Stadium Complex, Saint Paul, MN* – Coordinated and performed multiple Phase II environmental site assessments across a multi-parcel, 22 acre Site. Assisted with geotechnical investigations, monitor well installation, and hazardous materials surveys. During earthwork and construction of the stadium complex, oversaw all environmental aspects of redevelopment as part of the response action plan (RAP). Environmental concerns on Site included asbestos abatement, treatment of hazardous lead contaminated soils, removal of debris laden and low level impacted soils, and the management/removal of petroleum impacted groundwater and soils. Assisted with oversight of the installation of new vapor mitigation system, and coordinated efforts for future monitoring and sampling of potential soil vapor impacts. (December 2015 – Present).

TRAVIS B. PENNINGS, PE

Project Engineer

EDUCATION

Bachelor of Science Environmental Engineering
University of Wisconsin - Platteville

CERTIFICATIONS

Registered Professional Engineer
(Minnesota No. 53171)

U of M Erosion and Sediment Control SWPPP Design, and Site Management

40-hour HAZWOPER
Certification and annual refresher training

OSHA 29 CFR 1910.120
Hazmat Training

OSHA 29 CFR 1910.132
Personal Protective Equipment Training

OSHA 29 CFR 1910.134
Respiratory Protection Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

Mr. Pennings has been a member of the Braun Intertec Corporation team for 10 years and a registered Civil Engineer in the State of Minnesota (No. 53171). Mr. Pennings has been an integral part of several brownfield redevelopment projects with roles that include plans and specifications preperation, report preparation, permitting, detailed cost estimating, contracting, project scheduling, project team coordination, accurate field documentation, overseeing subcontractors' compliance with specifications and plans and acting as onsite advocate for our clients.

Travis has provided project management and oversight of the implemenation of various corrective actions including: excavation oversight, sub-slab depressurization system installation and monitoring, construction dewatering, onsite treatment of impacted soil and disposal of soil impacted with various contaminants including metals, petroleum, solvents and other hazardous materials. Travis is also knowledgable in storm water plan preperation, compliance, and inspection.

PROJECT EXPERIENCE

- *Bayfront Lot D, Duluth, MN* – Conducted supplemental investigation activities in accordance with the MPCA approved Sampling and Analysis Plan (SAP) for evaluation of potential exposed sediments after proposed dredging activities. Supplemental investigation activities included coordination with the Site owner, soil vapor sample collection, saturated soil sample collection, data analysis, and report preparation.
- *Northern Stacks Development, Fridley, MN* – Provided project management, Response Action Plan (RAP) Implementation oversight, plans and specification preparation, and RAP Implementation Report preparation for all four phases of the Northern Stacks Development. Formerly known as the Naval Industrial Reserve Operating Plant (NIROP) and FMC Sites, this 122 acre site is significantly contaminated by chlorinated solvents and is a Federal and State CERCLA site and also includes a RCRA site undergoing corrective action, numerous petroleum leak sites, and a 2,000,000 square foot operating facility, developed and operated since 1940. The on-going approximately 6-year project has included multiple remedial investigations for the four phases of the redevelopment, development and approval of remedial action work plans, regulatory negotiations and de-listing of the on-Site soil operable units, coordination with the US navy for re-construction of many aspects of the Navy's groundwater pump and treatment system and the planning and implementation of demolition of 1,500,000 ft^2 of the original manufacturing building.
- *Sub-Slab Vapor Sampling, Various Sites, MN* – Conducted sub-slab soil vapor sampling at various locations throughout the state of Minnesota under the existing MPCA contract.
- *St. Croix Bridge Crossing, Stillwater, MN* – Field Technician during the RAP/CCP Implementation during construction. Additionally, Travis served as field

technician during Phase II ESA in preparation for proposed roadway and bridge construction as part of the St. Croix River Crossing Bridge, Pickett Avenue Extension, and Riverside Pond Projects. Travis' responsibilities included placing and surveying test pit locations, preparation of test pit logs, overseeing test pit excavation and collection of soil samples for laboratory analysis. Contaminants of concern included: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), diesel-range organics (DRO), gasoline-range organics (GRO), metals, and asbestos.

- *Van White Memorial Boulevard, Minneapolis, MN* — Conducted field monitoring during RAP implementation, which included almost three months of soil classification, excavation observation and screening of approximately 15,000 cubic yards of soil removed as part of road and bridge construction through several contaminated properties. Characteristically hazardous soil was treated onsite prior to disposal and documentation samples were collected for rush analyses.
- *University of Minnesota Recreational Sports Dome, Minneapolis, MN* — Classification, screening, sampling and excavation oversight during removal of approximately 14,000 cubic yards of fill soil. Responsibilities included field screening soil to segregate impacted soil from non-impacted soil and documenting onsite re-use of impacted soils while minimizing disruption to the overall construction project.
- *Oak Street Flats, Minneapolis, MN* — Excavation observation, screening and confirmation sampling as impacted fill soil was removed as part of site redevelopment. The CCP was implemented when potential asbestos containing material was encountered.
- *Central Corridor Light Rail Transit Project, Minneapolis/St. Paul, MN* — Field technician during construction of 9.8-mile-long corridor. Responsibilities included screening of soil samples for contamination, collection of soil and groundwater samples, and documenting field work.
- *Groundwater Sampling of Monitoring Wells, Various Sites, WI* — Assisted in groundwater monitoring and received training on drilling oversight during monitoring well installation, environmental borings and geotechnical borings.

BRUCE P. SCHAEPE, PE

Senior Engineer

EDUCATION

M.S., Civil Engineering (Water Resources, Geotechnical Engineering, and Hydrogeology), University of Wisconsin, Milwaukee

B.S., Geosciences (Hydrogeology and Core Engineering), University of Wisconsin, Milwaukee

B.S., Regional Analysis (Planning), University of Wisconsin, Green Bay

PROFESSIONAL REGISTRATIONS

Professional Engineer
MN No. 40463

Professional Engineer
WI No. 38801-6

CERTIFICATIONS

Residential Mitigation Service Provider, National Radon Proficiency Program (NRPP) 104987 RMT

Multifamily Radon Mitigation NRPP

OSHA 40-Hour Hazardous Waste Operations Training (29 CFR 1910.120) and annual refresher training

PROFESSIONAL AFFILIATIONS

American Association of Radon Scientists and Technologists, Inc. (AARST)

Mr. Schaepe is an environmental engineer with more than 20 years of environmental consulting and engineering experience specific to building mitigation and remediation actions as well as a variety of Phase II investigations. Mr. Schaepe's expertise includes Phase II investigation design, implementation, and Quality Assurance/Quality Control (QA/QC) oversight for a variety of commercial, industrial and residential sites. He has supervised and managed investigations, mitigation and remedial cleanups for a variety of contamination issues related to petroleum products and hazardous substances/materials. He has provided both contractor oversight and turnkey services for site remediation projects, underground storage tank removals, and extensive remedial investigation and corrective actions.

SELECTED PROJECT EXPERIENCE

- *Former Fertilizer Manufacturing Plant (Howe Fertilizer), Brooklyn Center, MN* — Senior project engineer for the cleanup and redevelopment of a 5-acre property with widespread agricultural chemical contamination, as well as one petroleum release. The property was regulated by the Minnesota Department of Agriculture and both the Minnesota Pollution Control Agency's (MPCA's) Voluntary Investigation and Cleanup Program and Petroleum Remediation Program. Services included: preparation of an updated Response Action Plan, oversight of excavation and disposal of both chemical and petroleum-contaminated soil, design and oversight of vapor intrusion mitigation controls in the new building, and preparation of the final implementation report. (2016-2017)
- *West Duluth Industrial Site, Duluth, MN** — Lead engineer for the evaluation and pilot testing considered to remediate contaminated groundwater at a former junkyard area in Duluth, Minnesota. The site is adjacent to the St. Louis River and was managed by the MPCA Superfund Program. High concentrations of chlorinated solvents have been identified in the groundwater near the river. The pilot test of a proprietary enhanced reductive dechlorination solution produced a significant reduction in the concentration of the chlorinated compounds in the area of the test. Full-scale remediation is currently on hold. (2012-2017)
- *Pure Oil Bulk Facility, Excelsior, MN* — An investigation funded by the MPCA Superfund Program identified elevated concentrations of chlorinated compounds in the soil vapor beneath a commercial building which warranted mitigation. Mr. Schaepe acted as the Lead Engineer for the mitigation of the building which required preparation of specifications, contractor selection and oversight, and reporting. The mitigation was successful in producing vacuum beneath the basement floor that maintained the concentrations of chlorinated compounds in indoor air below MPCA Intrusion Screening Values. (2015-2016)

**A portion of the work was completed while employed by another firm.*

- *Holiday Station #251, St. Peter, MN* — Project manager and lead engineer for investigation and remediation of a petroleum release at an active service station in St. Peter, Minnesota. A leak in an underground transfer pump produced a release of approximately 1,700 gallons of gasoline directly into the ground. Investigations identified light non-aqueous phase liquid (LNAPL) at observed thickness up to nine feet in the vicinity of the release. Mr. Schaepe managed multiple injections of a solution containing a proprietary in-situ chemical oxidation product followed by vacuum recovery of gasoline and contaminated water. The LNAPL observed during the most recent monitoring event has been reduced to four inches thick. (2017-present)
- *Multiple Active Transportation Corridors, Minnesota Department of Transportation (MnDOT), MN** — Mr. Schaepe has assisted with the planning and implementation of many of the Phase II Investigation projects assigned under a MnDOT contract. Under this contract, Mr. Schaepe helped complete Phase II investigations and/or construction monitoring for projects in the cities of St. Louis Park, Duluth, Winona, Ada, Lindstrom, Rice, Kenyon, Moorhead and Mankato. The projects included identifying soil and groundwater contamination within the project corridors that could affect the planned roadway construction. (2009-2017)
- *Quality Assurance Project Plan (QAPP), Minnesota Targeted Brownfield Assessment Program, MN** — Author of the QAPP and consultant quality manager responsible for field data and investigation results being collected and presented according to specific quality guidelines during execution of the project. The project scope included the investigation of hazardous substances and/or petroleum contaminated sites identified by the Minnesota Pollution Control Agency (MPCA). The investigations were funded by the US Environmental Protection Agency (USEPA) Brownfields Assessment Grant, in which funds were designated to assess properties potentially impacted by hazardous substances and/or properties impacted by petroleum products. (2011-2016)

**A portion of the work was completed while employed by another firm.*

BRAUN INTERTEC

SAMANTHA J. SCHMIDT

Staff Scientist

EDUCATION

B.S., Geology,
Minnesota State University, Moorhead

PROFESSIONAL REGISTRATIONS

Asbestos Inspector
MN No. AI13262
WI No. AII-241814

PROFESSIONAL CERTIFICATIONS

40-Hour HAZWOPER OSHA 1910.120

10-Hour Construction Safety OSHA 1910.120

H_2S Safety Certification

Mrs. Schmidt has worked in the environmental consulting field since 2015 and has experience in various environmental diciplines including geological, hazardous waste, asbestos, soil excavations, and remediation of soil, groundwater and vapor. She has supervised, managed and conducted environemntal related activites associated with Phase I Environmental Site Assessments (ESA), Phase II ESAs, hazardous materials surveys, site investigations, remediation oversite, and well monitoring and sampling a variety of media. Samantha's duties include client communication, project reporting, field studies and historical research.

PROJECT/WORK EXPERIENCE

- *Credit Union, Moose Lake, MN* – Performed environmental site assessment, which included soil, groundwater and vapor sample collection. Developed a detailed Response Action Plan (RAP) for proposed redevelopment. Oversaw site redevelopment which included excavation of contaminated soils and the installation of an active vapor mitigation system. Completed the RAP implementation report once redevelopment was completed (May 2017-March 2018).
- *Elementary School, Superior, WI* – Provided technical assistance during investigation and remediation project for a polycyclic aromatic hydrocarbon release. Her responsibilities included overseeing all phases of the project, serving as the primary contact with the WDNR and other involved parties and managing field personnel, project quality control, and the project schedule and budget.
- *Various Proposed Kwik Trip Sites, Duluth, MN and Superior, WI* — Conducted on-site environmental field work. Duties included project coordination, soil screening, water sampling, and operating a water treatment system.
- *Phase I ESAs* — Responsible for Phase I ESAs of several sites throughout the northern Minnesota and Wisconsin region. Sites range from private homes to commercial/industrial buildings. Responsibilities include client communication, report writing, site reconnaissance, and working with the Minnesota Pollution Control Agency (MPCA) and Wisconsin Department of Natural Resources (WDNR) to acquire the appropriate liability assurances.
- *Site Investigations* — Samantha has completed numerous petroleum and hazardous waste spill investigations including MPCA and WDNR Site Investigations and has performed work for petroleum and hazardous waste sites conducting soil, groundwater and vapor sampling.
- *Phase II ESAs* — Samantha has performed appropriate management, planning and field work for Phase II ESAs, which have included sampling for soil, groundwater, and vapor at various locations throughout Minnesota and Wisconsin.

- *Hazardous Material Surveys* — Samantha has performed field work for hazardous material surveys throughout Minnesota. Field work included asbestos and lead-based paint sampling, and regulated material surveys.
- *Radon Surveys* — Samantha has performed field work for multiple radon surveys throughout Minnesota.
- *UST Removal Observations and Testing* — Samantha has observed various UST removals and collected soil and groundwater samples for laboratory analysis at various locations throughout Minnesota.
- *Lead Wellsite Geologist and Geosteering Consultant** — Sample logging and interpreted geologic logs for vertical and horizontal wells, incorporating geophysical log analysis and logging while drilling data (LWD). Geosteering of horizontal wells utilizing sample, gas, drilling, and LWD data.

**While employed by another firm.*

JOSHUA T. KADRMAS

Project Engineer

EDUCATION

B.S., Civil Engineering,
North Dakota State University

B.S., Biological Sciences,
North Dakota State University

PROFESSIONAL REGISTRATIONS

Professional Engineer:
ND No. PE-6366
MO No. PE-2005022119
MN No. 50262

CERTIFICATIONS

OSHA 10-Hour Training

MSHA 40-Hour New Miner Safety

10-Hour Construction Safety

Site Safety Coordinator/Supervisor

Excavation Safety

Confined Space Entry

At Braun Intertec in North Dakota, Mr. Kadrmas serves as a professional engineer and scientist with a combination of diverse engineering work experience, technical experience, and scientific background. This combination allows for unique and effective perspectives in evaluating data to solve both water resource and environmental problems. Joshua's experience includes conducting environmental contaminant investigations and feasibility studies to fit various remediation strategies to site-specific conditions, preparing and implementing remedial action plans for a variety of hazardous substances and petroleum. He also has experience in environmental compliance regulations such as wetland mitigation, Spill Prevention, Control and Countermeasure Plan (SPCC), industrial stormwater, Resource Conservation and Recovery Act (RCRA), and National Environmental Policy Act (NEPA) compliance.

PROJECT EXPERIENCE

- *Power House Demolition, Hawley, MN* – Coordinated pre-demolition hazardous building material inspection, prepared demolition specifications, and provided environmental support during the demolition of a diesel generator power plant. Unique project challenges included: a complex and expedited demolition schedule to allow the removal and preservation of the 5 large diesel generators and associated equipment; the discovery of an inactive well within the building foundation; and addressing impacted soil and groundwater in coordination with MPCA.
- *Environmental Construction Support, Division Street, Elbow Lake, MN*-Provided environmental support for the reconstruction of Division Street and replacement of buried municipal utilities. The work included coordination with MPCA to establish a leak site ID for the identified contamination, get approval for disposal of the impacted soil at a land application facility, and receive pre-authorization for reimbursement through the Public Works Program within the MPCA Petrofund. Onsite soil screening was also performed during excavation to determine what materials could be reused onsite in accordance with MPCA guidelines, and what material needed to be hauled offsite for proper disposal.
- Main Ave, 20th St, and 21st St Grade Separation, Moorhead, MN-Conducted a historical records and MPCA file review, in addition to subsurface soil and groundwater sampling to identify and characterize the extent of petroleum impacted soil anticipated to be encountered during construction of the underpass and associated buried utility improvements. The project included identifying and reporting a previously unknown leak site, generating special provision for the construction specifications, and coordination with MPCA in anticipation of the City requesting reimbursement through the Public Works Program within the MPCA Petrofund.

**While employed by another firm.*

- *9th St NE Water Main Improvements, West Fargo, ND*-Conducted a file review for environmental concerns that could potentially impact the construction or operation of a plastic water main proposed adjacent to active auto salvage and bulk petroleum facilities. Coordinated environmental sampling of soil and groundwater with an existing geotechnical investigation to minimize the investigation costs for the City. Provided additional support to the design engineer regarding requirements for handling impacted soil and groundwater during construction.
- *Improper Disposal along Stony Creek, Williston, ND*-Provided engineering and environmental support to the property owner and legal counsel to respond to separate complaints from the North Dakota Department of Health regarding improper disposal of construction debris, and from the US Army Corps of Engineers regarding placement of fill within a flowage easement. The work included collecting historical information about the extent of the easement, characterizing the existing fill, and evaluating available mitigation options that would meet the requirements of both regulatory agencies.
- *Whetstone Creek Restoration Project, Ortonville, MN* — Project manager for a limited investigation of environmental concerns along an abandoned portion of Whetstone Creek which was proposed for restoration. Concerns included a number of incidents of surface disposal of solid waste, a historical pit used by the former cannery for disposal of waste materials, asbestos, and other building demolition debris.
- *Belsly Swale, Moorhead, MN* — Collected surface and subsurface soil samples to characterize soil and sediment proposed for removal as part of an expansion of the stormwater retention capacity. Materials were characterized for potential reuse or disposal, in compliance with Minnesota Stormwater regulations.
- *Minot AFB Medical Clinic Renovations, Minot Air Force Base, ND* — Project Manager for environmental and geotechnical assistance in the renovation of the medical clinic. Project activities included a mold and hazardous building materials inspection, geotechnical evaluation for temporary building and new awning, and tap water quality assessment for proposed medical equipment.
- *Whisky Creek Sediment Pond Dredging, Barnesville, MN** — Conducted a technical feasibility analysis to evaluate options for the dredging of a stormwater pond within the public waters of Minnesota. Options included conventional excavation and hydraulic dredging of the accumulated sediment. The project was complicated by the inability to draw down the water level and limited access for heavy equipment around the perimeter. Limited spaced for dewatering of excavated sediment lead to the initial selection of geotextile bags to dewater the sediment. Residual arsenic levels in the sediment also restricted disposal options for the removed sediment.
- *First National Bank of Henning Stormwater Pond, Otter Tail, MN* — Characterized the accumulated sediment for residual polyaromatic hydrocarbons (PAH) and heavy metals associated with runoff from asphalt

parking lots, per Minnesota State guidance. Compared the analytical results against state and federal action levels to recommend appropriate disposal options.

- *Waste Water Lagoon Characterization, Ross, ND* — Prepared a work plan and conducted field work to characterize water and sludge in the wastewater pond. The work was done to assess the potential for subsurface seepage to impact adjacent surface or groundwater resources.
- *Highway 1804 Phase II Environmental Site Assessment (ESA), North Dakota Department of Transportation (NDDOT), Williston, ND* — Served as project manager to investigate the extent of soil and groundwater contamination that could potentially be encountered during utility reconstruction under the highway, adjacent to a former oil refinery. Worked with the client to establish construction specifications to limit worker exposure, estimate quantities of impacted soil and dewatering fluids that would be generated during construction, and identified treatment and disposal options for inclusion in the design and bid documents.
- *Wadena Store, Naytahwaush, MN* — Coordinated Geoprobe and excavation contractors. Conducted oversight of a Phase II ESA and UST removal. Made in-the-field adjustments to accommodate a change in scope from three 1,000-gallon USTs to three 8,000-gallon USTs. The changes included adjustments in the size of equipment needed on site and the number of samples needed to confirm any residual soil contamination at the extents of the excavation. Also oversaw assembly of the summary report for the Environmental Protection Agency (EPA) to document the field activities and the residual contamination remaining on site.
- *Manston Slough Restoration Project, Wilkin, MN** — Conducted construction observation for culvert installation, embankment construction, structural concrete, and fish barrier structure installation associated with restoration of partially drained wetlands in the Manston Slough Wildlife Management Area. The project involved moving more than 500,000 cubic yards of material to improve nine miles of ditches and construct more than six miles of embankment. The restored wetlands will extend over approximately seven square miles.
- *Burlington 4th Street Manufactured Gas Plant (MGP) Site, Burlington, IA** — Prepared and implemented a remedial action plan to remove 4,830 tons of contaminated soil, brick, and concrete building debris. Duties included supervising excavation and trucking contractors, administering the health and safety program, monitoring air quality and collecting confirmation samples to document residual concentrations at the extent of the removal. Follow-up investigations included characterizing the overlapping extent of DNAPL and LNAPL plumes from adjacent responsible parties and sub-slab soil vapor sampling.
- *Former Manufactured Gas Plan Sites, IA, NE, MN, KS, LA** — Conducted field investigations, groundwater monitoring and remedial actions. Prepared

feasibility studies and comparative cost assessments to evaluate alternatives for the removal or sequestration of dense non-aqueous phase liquid (DNAPL) and contaminated soil above and below the groundwater table. Conducted human health risk assessments to evaluate the potential combined exposure to local populations from multiple contaminated media through multiple exposure routes. Documented contaminant reduction and what oxidation–reduction reactions were dominant in the system. The evaluations were used to demonstrate to the respective regulatory agencies that natural attenuation was occurring on the contaminants and that further migration was unlikely despite the persistence of elevated contaminant concentrations.

- *Cleveland Pneumatic Company Site, Cleveland, OH** — Prepared a human health risk assessment for soil, which included volatile and semi-volatile organics, poly-chlorinated biphenyls, and heavy metal contaminants in accordance with Ohio EPA guidance.
- *Cargill Flour Milling, Wichita, KS** — Organized and conducted soil and groundwater investigations to characterize the extent of carbon tetrachloride and degradation compounds within the larger North Industrial Corridor Superfund site. Made recommendations and prepared a work plan to implement installation of a zero-valent iron reactive barrier wall to treat the source area and intercept the groundwater contaminant plume.

COURTNEY R. LANEY

Staff Scientist

EDUCATION

B.S., Geological Sciences, University of Minnesota –Duluth

Geographic Information Systems Certificate, University of Minnesota – Duluth

PROFESSIONAL REGISTRATIONS

Minnesota Asbestos Inspector No. A12163

Minnesota Lead Assessor No. LR5325

North Dakota Asbestos Inspector No. 5207

North Dakota Lead Assessor No. 352

South Dakota Asbestos Inspector No. 7633

CERTIFICATIONS

40-hour HAZWOPER OSHA 1910.120

10-hour Construction Saftey OSHA 1910.120

H2S Saftey Certification

HazCom Saftey Certification

Ms. Laney is a Staff Scientist who began her career at Braun Intertec in 2012. Courtney is competent in conducting appropriate project management and field work for Phase I Environmental Site Assessments, Phase II Environmental Site Assessments, hazardous material investigations, well monitoring, and sampling a variety of media. Her duties include project management, client communication, project reporting, field studies, and historical research.

PROJECT EXPERIENCE

- *Phase I Environmental Site Assessments (ESAs)* — Courtney performed multiple Phase I ESAs, including field work and reporting, at various locations throughout North Dakota, Minnesota, and Montana.
- *Phase II Environmental Site Assessments* – Courtney has performed appropriate field work for Phase II ESAs, which included sampling for soil, groundwater, and soil vapor, at various locations throughout North Dakota and Minnesota
- Hazardous Material Surveys – Courtney has performed field work for hazardous material surveys throughout North Dakota and Minnesota. Field work included asbestos and lead-based paint sampling, and regulated material surveys.
- *MPCA VIC Project No. 23371, Moorhead, MN* – Courtney currently serves on a team for the redevelopment of the former Aggregate Industries property in Moorhead (Leak Site 4316) to residential development. Contamination at the site includes petroleum, solvent, and polycyclic aromatic hydrocarbon contamination. Courtney's roll involves the management and oversight of the Response Action Plan, which included: excavation activities, and quality assurance sampling. Construction activities included excavation of fill and contaminated soils, and vapor barrier installation. Quality assurance activities included soil screening, tracking contaminated soil manifests, excavation confirmation sampling, air monitoring during and after construction, and confirm Residential Soil Reference Values and Vapor Intrusion Screening Values are met or exceeded.
- *MPCA VIC Project No. VP55789, Fergus Falls, MN* – Courtney served on a team of implementing a MPCA-approved Response Action Plan for the redevelopment of a former gas station, and leak site. Courtney was responsible for the oversite of the excavation activities and contaminated soil disposal, and drafting the implementation report for MPCA approval.
- *MPCA LEAK No. 17807 Remedial Investigation, Sebeka, MN* – Courtney served on a team that preformed the necessary fieldwork work and reporting that meet standards for the MPCA remedial investigation, annual sampling, and implementation of a Conceptual Corrective Action Design, and approve the Site for closer.
- *Northern Stacks Superfund Site, Fridley, MN* – Courtney served on a team for two weeks providing oversight for test trench excavations. Courtney's roll included excavation oversight, soil classifications, field observations and

determining sample location for analytical analysis that complied with the MPCA approved Response Action Plan.

- *Anstadt/Furey Properties, Frazee, Minnesota* – Courtney managed field efforts for the Phase I ESA and Hazardous Material surveys of the Anstadt and Furey buildings under the MPCA Contract No. 63181.
- *Moorhead Grade Separation Project, Moorhead, MN* – Courtney currently serves on a team for preforming the necessary environmental assessments for the future oversight of potential contaminated soils encounter during the Moorhead Grade Separation Project. Courtney oversaw the implementation of a Phase I ESA Corridor study and Phase II ESA to determine extent of soil contamination within the proposed excavation areas. Future work will involve oversight of excavated soils and soil disposal manifesting.
- *City of Moorhead Lead-Based Paint Assessments, Moorhead, MN* – Courtney currently serves on a team under a 2-year contract with the City of Moorhead to conduct lead-based paint assessment and clearance exams on pre-1978 houses, which qualify for the Community Development Block Grant funded by the Department of Housing and Urban Development.
- *Belfield Landfill, Belfield, North Dakota* – Courtney currently serves on a team for performing appropriate well monitoring and quarterly groundwater sampling for an oil-waste landfill.
- *Canadian Pacific Railway Well Sealing, Ree Heights and Iroquois, SD* –– Courtney oversaw investigative excavation for vacant wells, and proper well abandonment in accordance to South Dakota Department of Environment and Natural Resources.
- *Ashland/NSP Lakefront Superfund Site, Xcel Energy, Ashland, WI* – Courtney served on a team during initial site activities. Courtney's roll included performing third party construction quality assurance review during remediation of contaminated soil and groundwater related to historic coal gas manufacturing operations. Construction Activities included excavation, treatment, and backfilling of impacted soil; construction of a DNAPL recovery system; and construction of a slurry wall/sheet pile wall. Quality Assurance activities included tracking submittal review, field oversight of quality assurance testing performed by others, and preparing memoranda documenting completion of construction tasks.

TED R. HUBBES, PG, CHMM

Associate Principal/Project Manager

EDUCATION

B.S., Geology (Hydrogeology),
University of Minnesota, Duluth

NGWA Soil and Groundwater Modeling for Risk Assessment Course

Numerous courses and seminars related to Brownfields redevelopment in Minnesota and Wisconsin

CERTIFICATIONS

Professional Geologist
MN No. 30157

Professional Geologist
WI No. 1124-013

Institute of Hazardous Materials Management
Certified Hazardous Materials Manager
No. 10792

Certified OSHA Hazardous Waste Site Worker and Supervisor
29 CFR 1910.120

PROFESSIONAL AFFILIATIONS

Minnesota Ground Water Association

Mr. Hubbes provides environmental services and supervises environmental staff for the Braun Intertec Northern Minnesota operations. Ted has more than 25 years of experience as an environmental consultant. He has managed several hundred environmental investigation and remediation projects, and provided technical assistance on many other projects in Minnesota and throughout the Midwest.

His responsibilities include scoping projects and preparing proposals, managing project schedules and budgets, and communicating with clients and regulators. Ted also designs and implements remedial action plans and has extensive experience in field activities. He assists developers and municipalities with state and federal regulatory programs and brownfield grant programs. He also provides third-party reviews of work completed by other consulting firms. Ted is responsible for the preparation and technical review of environmental site assessments (Transaction Screen/Phase I/Phase II), remedial investigations, corrective action design, remediation progress and monitoring reports.

Ted has negotiated regulatory site closures involving more than 100 sites, using risk-based methods such as natural attenuation and bio-degradation, transport modeling, and administrative and engineering controls. Using these methods, he has often reduced or eliminated cleanup requirements. Ted also has experience negotiating letters of assurance through the Minnesota Pollution Control Agency (MPCA) Voluntary Investigation and Cleanup (VIC) and Petroleum Brownfields programs.

PROJECT EXPERIENCE

- *Industrial Site, Grand Rapids, MN* — Ted is currently serving as the project manager for an environmental evaluation of a former 200+ acre facility. He has coordinated the completion of a Phase II investigation, including the completion of numerous soil borings at the facility. The work was conducted under a grant obtained through the Minnesota Department of Employment and Economic Development.
- *Idea Drilling, Virginia, MN* — Ted recently assisted with environmental evaluations and remediation at the new corporate headquarters. The property had a long history of use by former mining interests. The project involved Phase I and Phase II ESAs, and remediation of soils impacted with petroleum and arsenic.
- *Demolition Landfill, Bemidji, MN* — Ted is managing the hydrogeologic evaluation of an active demolition landfill facility. This project has involved establishing a monitoring well network and evaluating the presence of low-level chlorinated volatile organic compounds (VOC).

- *Confidential Client, Central MN* — Served as project manager for environmental investigation and remediation of former granite manufacturing site being demolished after more than 100 years of operation.
- *Major Railroad Client* — Conducted Phase I and Phase II ESAs for a 40-acre railroad yard, evaluating property used from the 1800s to present. Ted managed several soil and groundwater investigation and remediation projects related to contaminants identified in the Phase I and Phase II ESAs.
- *11-Acre Industrial Site* — Served as consultant and regulatory liaison for a major national retailer interested in purchasing the site as a high-visibility retail location. The site consists of mostly abandoned buildings formerly occupied by a metal fabrication facility and other industrial uses. The site is impacted with PCBs, chlorinated VOCs and metals. Site cleanup requirements are being regulated through the state regulatory agency and the USEPA.
- *Former Metal Fabrication Facility, Caledonia, MN* — Served as project manager and helped clients participating in the MPCA VIC Program. This project involved hydrogeologic characterization in a karst environment where chlorinated compounds have impacted the municipal water supply. The planned investigation focused on groundwater receptors, and used karst features and existing water supply wells as sampling points. This approach has provided significant cost savings compared to traditional investigation methods.
- *Downtown Redevelopment, Winona, MN* — Served as project manager for the buyer of several downtown buildings, one a dry cleaning facility. A site investigation found that soils and groundwater were impacted with chlorinated VOCs. Ted supervised demolition aspects of the project, including hazardous materials removal and implementation of a construction contingency plan for managing impacted soils, which was approved through the MPCA VIC program.
- *Former Steel Supply Property* — Managed the investigation and remediation of a site impacted with chlorinated solvents, metals and PCBs as a result of historic industrial uses of the site.
- *Tribal Brownfields and Superfund projects, Cass Lake MN* — Ted has served as the lead environmental consultant for the Leech Lake Band of Ojibwe since 2010. Projects include environmental assessments on brownfields sites, hazardous materials assessments, consulting and split sampling for the St. Regis Superfund site, and numerous other projects.
- *Rohlfing Distribution, Duluth, MN* — Assisted client with funding through Minnesota DEED Program. Implemented Remedial Action in conjunction with soil corrections to allow construction of facility expansion. Designed and oversaw installation of soil vapor mitigation system.

JOHN J. WYCISKALLA, PG

Associate Principal/Senior Scientist

EDUCATION

B.S., Geology,
University of Iowa

PROFESSIONAL REGISTRATIONS

Professional Geologist
KS No. 877

Registered Geologist
MO No. 2004013545

CERTIFICATIONS

Army Corps of Engineers Wetland Delineation and Management Training
No. 2280

40-Hour HAZWOPER
Certification and annual refresher training

OSHA 29 CFR 1910.120
Hazmat Training

OSHA 29 CFR 1910.132
Personal Protective Equipment Training

OSHA 29 CFR 1910.134
Respiratory Protection Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

American Red Cross Certified CPR – Adult

8-Hour HAZWOPER Refresher Training
29 CFR 1910.120

Nuclear Density Gauge and Radiation Safety Training

PROFESSIONAL AFFILIATIONS

Geological Society of America

Mr. Wyciskalla has 18 years of experience as an environmental consultant. John has managed and provided services on more than 500 Phase I and II Environmental Site Assessments (ESA), limited site assessments, divestment investigations, and underground storage tank (UST) sites throughout Arizona, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Nevada, North Dakota, Ohio, South Dakota, Tennessee, Utah and Wisconsin. He has performed wetland screening, delineation and habitat surveys for property acquisitions and assessments. He has also provided 24-hour emergency hazardous spill response for a national retail fuel facility.

John is responsible for managing environmental projects, directing and supervising field activities, coordinating contractors, and communicating with clients and regulatory agencies. He is also responsible for analyzing field and laboratory data, interpreting and applying regulatory statutes and guidelines, and providing corrective action recommendations.

PROJECT EXPERIENCE

- *Wisconsin Department of Natural Resources Site Assessment Grant (SAG) Program, Bangor, WI* — Managed the SAG projects after two grants were awarded for a site in Bangor, Wisconsin. John successfully defined the degree and extent of VOCs, PAHs and metals in soil and groundwater at the site. Responsible for coordination with involved parties, performing or assisting with all on-site field activities, and reporting for the SAG and subsequent Phase I and II and Hazardous Building Materials reports. John also developed the bid documents for subcontractors and assisted with discussions with perspective contractor/developers for the parcel sale and successful purchase of property.
- *Riverside Center & Weber Center for the Performing Arts, La Crosse, WI* — Managed Phase I ESA and Phase II ESA due diligence activities associated with redevelopment of a 4-acres water front property previously occupied by a Cargill grain operation. Three five-story office buildings were developed valued at more than $44 million and a performing arts center.
- *O'Hare Airport (ORD), Chicago, IL* — Worked with airline and airport authority to effectively define extent of petroleum release and complete remedial cleanup for site. Responsible for coordination with involved parties, regulatory agency and assisted with on-site field activities.
- *Iowa Department of Natural Resources (IDNR) Land Recycling Program (LRP), Ames, IA* — Worked with the client and IDNR to effectively define the extent of heavy metal impacts in soil on-site which was located adjacent to a city municipal well field. Responsible for coordinating on-site field activities and reporting to the IDNR LRP. Regulatory protection for client was obtained from IDNR via a No Further Action certificate following investigation activities.

- *Middletown, IA* — Worked with the U.S. Department of Defense and EPA to acquire and declassify a property on a Superfund site. Responsible for coordination with involved parties, performed or assisted with all on-site field activities and reporting for the Environmental Baseline Survey (ASTM 6008) and subsequent Limited Phase II reports.
- *St. Louis, MO* — Worked with the client and Missouri DNR to address near surface PAH and lead contamination for pre-construction design. Worked with State VCP program to save client more than $20,000 in soil disposal costs.
- *Lake Mills, IA* — Completed delineation investigation and corrective action of bulk ammonia release with offsite impact to water body.
- *State of Iowa* — Worked with state UST insurance fund to inspect more than 300 retail, bulk and private USTs across the entire state. Provided detailed data updates, system changes, record verification and deficiencies for investigated sites.

ROBERT E. NORDBY

Associate Principal / Senior Scientist

EDUCATION

B.S., Mechanical Engineering
South Dakota State University

CERTIFICATIONS

USEPA – Accredited Asbestos Inspector
MN No. AI3006

Asbestos Site Supervisor
No. AS3006

NIOSH Sampling and Evaluating
Asbestos Dust
No. 582

40-hour HAZWOPER Certification and Annual Refresher Training

8-Hour HAZWOPER Refresher Training
Recertification (4/18/2015)

OSHA 29 CFR 1910.120
Hazmat Training

OSHA 29 CFR 1910.132
Personal Protective Equipment Training

OSHA 29 CFR 1910.134
Respiratory Protection Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

Fall Protection Training

University of Minnesota Erosion and Sediment Control Program: Site Management Certification

e-Rail Railroad Safety Training
Certification #731265703181

PROFESSIONAL AFFILIATIONS

American Society of Mechanical Engineers

American Society of Military Engineers

American Industrial Hygiene Association

As an associate principal and supervisor, Mr. Nordby is responsible for the day-to-day operations of the Hazardous Materials group. Robert has worked in the environmental / engineering consulting field since 1986. He is responsible for the oversight of comprehensive hazardous building material inspections, designing and managing asbestos, lead and other hazardous material abatement projects. He also manages property transfer assessments, hazardous materials inspection and ongoing environmental maintenance. Robert serves as a site safety construction representative, and assists with industrial hygiene services, noise surveys, indoor air quality assessments and ventilation systems evaluation. These duties have been performed for a clients including local, state and federal governments; private sector businesses, investors, landowners and attorneys; and non-profit agencies.

ASBESTOS/LEAD AND HAZARDOUS MATERIAL INSPECTIONS

Robert has conducted or managed more than 2,500 asbestos, lead and hazardous material inspections for Braun Intertec. These inspections have been performed for property transactions, renovation and demolition projects, litigation, and general building health and safety.

Specific project inspection experience has involved:

- 3M Company facilities nationwide
- 934th Logistics Group Air Base (DOD), Minneapolis, MN
- Hillcrest Development properties throughout Midwest
- Metropolitan Waste Control Commission, MN
- Minneapolis Public Housing Authority, Minneapolis, MN
- Minneapolis-St. Paul International Airport, MN
- Pittsburgh International Airport USARC, PA
- Target Stores nationwide
- U.S. Bancorp properties nationwide
- United States Postal Service nationwide
- V.A. Medical Centers nationwide
- Wal-Mart stores throughout the Midwest

ABATEMENT PROJECT DESIGN / TURN-KEY ABATEMENT

Robert has personally designed and managed more than 150 asbestos, lead and hazardous material abatement projects at Braun Intertec. These have involved industrial facilities, hospitals, office complexes, miscellaneous commercial buildings, multi-family housing units, military facilities, schools and universities. He prides himself in working closely with the client and project team to custom design safe, seamless and cost effective abatement projects. Specific experience includes:

- Highlight Center, 807 Broadway Street NE, Minneapolis, MN
- Westside Center, 5320 West 23rd Street, St. Louis Park, MN
- C & E Lofts Historic Apartments, 2410 University Ave W, St. Paul, MN

- Custom House Project, former Eugene McCarthy Post Office, St. Paul, MN
- Pentagon Park Project, Edina, MN
- South Saint Paul and Red Wing HRA
- St. Paul Saints – CHS Field, St. Paul, MN

ON-SITE MONITORING AND ABATEMENT PROJECT MANAGEMENT

Robert performed or managed on-site monitoring and management for more than 500 asbestos, lead and hazardous material abatement projects at Braun Intertec. The role of the on-site manager is to represent the owner on abatement projects and ensure regulatory compliance; perform inspections, air sampling, quality control; and overall project performance. Specific project experience includes:

- 3M plants throughout the United States
- Boise Cascade Facilities, International Falls, MN
- Cargill facilities throughout the Midwest
- Division of State Building Construction throughout MN
- Fort Wadsworth Naval Station, Staten Island, NY
- Hillcrest Development properties throughout Midwest
- Metropolitan Airport Commission, Minneapolis/St. Paul, MN
- Minneapolis Public Schools, Minneapolis, MN
- Minneapolis-Saint Paul International Airport, MN
- Metropolitan Waste Control Commission, MN
- University of Minnesota, Minneapolis, MN
- V.A. Medical Center, Minneapolis, MN
- V.A. Medical Center, St. Cloud, MN

ON-SITE SAFETY REPRESENTATIVE / ENVIRONMENTAL SERVICES

- 3M Facility, Hutchinson, MN
- 3M Facility, Middletown, WV
- 3M Facility, Prairie du Chien, WI
- 3M Facility, St. Paul, MN

SWPPP / EROSION CONTROL PROGRAM

Mr. Nordby is experienced in environmental conditions and permit requirements involving environmental SWPPP issues. His involvement in storm water management extends from earlier NPDES Phase I Sediment Erosion and Control Plans to the more current Phase II Storm Water Pollution Prevention Planning requirements. He is able to use this experience effectively to develop Best Management Practices (BMPs) that are appropriate and cost-effective for specific projects.

- Town & Country Homes, MN
- K. Hovnanian Homes, MN

T. ALEXANDER BOECHER

Staff Engineer

EDUCATION

M.S., Geological Engineering,
University of Wisconsin, Madison

B.S., Physics,
Illinois Wesleyan University

CERTIFICATIONS

American Concrete Institute
Concrete Field Testing Technician Grade I
No. 01296786

MnDOT Certified Concrete Field Level I
(pending)

Engineer-In-Training (EIT)

40-Hour OSHA HAZWOPER
Certification and Annual Refresher

e-Railsafe Railroad Worker

Michigan Certified Industrial Stormwater Operator
Michigan Soil Erosion & Sediment Inspector

Hazardous Materials Transportation (HAZCOM)

TROXLER Nuclear Density Gauge Certified
(pending)

Mr. Boecher is a geological engineer skilled at using multidisciplinary scientific and engineering approaches. Alex's responsibilities at Braun Intertec include Phase I and II Environmental Site Assessments (ESA), laboratory and field work coordination, on-site implementation, construction quality assurance (CQA) oversight, soil analysis and classification, and report writing.

Prior to joining Braun Intertec, he worked with another firm providing environmental compliance and consulting services.

PROJECT EXPERIENCE

- *90th Street Slope Failure Reconstruction, Leon Township, MN* — Slope failure and subsequent repair on steep-banked road. Observed and documented the construction of engineered slope design and provided on-site soil classification to screen for acceptable slope base material.
- *Chuck's Tire Phase II, Rochester, MN* — Observed and documented soil and vapor sampling as part of a Phase II subsurface investigation for a property transfer in downtown Rochester. (2014)
- *Stonebrooke Engineering Road Construction, Waseca, MN* — Delineated contaminated soils in a road reconstruction. Took soil samples and screened excavated soils for off-site disposal. Documented services and provided report to client. (2014)
- *CP Rail Long-Term Expansion Projects, Southeast MN* — Provided soil classification and analysis for soil borings relating to bridge and rail spur expansions on CP Rail properties throughout the region. Assisted deep foundations engineers in preparing structural report for client. (2014)
- *CAPX 2020, Southeast MN* — Provided soil and bedrock classification and analysis for soil borings relating to the construction of a new electrical utility corridor. (2014)
- *Low-Flow Groundwater Sampling, MI and IN** — Low-flow quarterly groundwater sampling for long-term environmental monitoring. Performed lab coordination, property owner notifications, low-flow bladder and peristaltic sampling for wide range of analytes, documentation, and quarterly report preparation. (2011-2014)
- *Pump and Treat Operations, Maintenance & Monitoring, Muskegon, MI** — Long-term groundwater interception and treatment system requiring monthly maintenance and monitoring. Provided monthly sampling and monitoring support, laboratory coordination, report writing, and documentation as necessary for repairs and upgrades. (2012-2014)
- *Dober Mine Acid Mine Drainage Mitigation, Iron River, MI** — Mitigation of acid mine drainage associated with historical iron mining. Provided daily monitoring support, on-site reconnaissance and historical records research, project management and planning, National Pollutant Discharge Elimination

**While employed by another firm.*

System (NPDES) discharge monitoring report preparation and submission, electronic and database records management, passive treatment system maintenance and oversight, and documentation report preparation as necessary. (2011-2014)

- *Perrigo Companies Permit Compliance, Holland, MI** — Pharmaceuticals manufacturer with NPDES and air permitting requirements. Provided database records management, air permit consulting, records management consulting, and engineering calculations support. (2012-2014)
- *International Paper, Inc. Contaminated Soil Cap, Three Rivers, MI** — Mitigation of direct contact risk associated with lead soils. Provided project management and planning, on-site quality engineer, daily documentation, contractor oversight, stormwater compliance observation, and preparation of documentation report. (2013)
- *Par Electrical Contractors Utility Corridor Upgrade, Fremont, OH** — Upgrade of 138kV electrical corridor. Provided environmental and stormwater compliance monitoring, daily documentation, contractor oversight, and assisted in property access negotiations during construction. (2013)
- *General Motors Power Train, Retention Berm Installation, Defiance, OH** — Construction Quality Assurance for soil berm construction along retention basin. Provided daily documentation, TROXLER density readings, quality control, and contractor oversight for installation. (2012)
- *ThyssenKrupp Waupaca Landfill Cap Installation, Tell City, IN** — Construction Quality Assurance for geosynthetic clay liner (GCL) installation at Restrictive Waste Landfill. Provided daily documentation, quality control, and contractor oversight for installation. (2011)
- *Tecumseh Products Groundwater Remediation, Tecumseh, MI** — Installation of groundwater interception trench and permeable reactive barrier to mitigate chlorinated solvent plume. Provided daily documentation, contractor oversight, quality control, and preparation of documentation report. (2011)

BRAUN INTERTEC

JILL C. MICKELSON, PE

Senior Engineer

EDUCATION

B.S., Department of Civil & Environmental Engineering
Massachusetts Institute of Technology

PROFESSIONAL REGISTRATIONS

MN Professional Engineer
No. 47065

CERTIFICATIONS

Minnesota Department of Health Asbestos Inspector (Renewal Pending)
No. AI10868

University of Minnesota –
Site Management and
Design of SWPPP

HAZWOPER Site Supervisor

PROFESSIONAL AFFILIATIONS

Commission Member,
City of Rochester Sustainable Energy Commission
(Term 2009 – 2012)

Minnesota Society of Professional Engineers, Southeast Chapter

Ms. Mickelson has more than 16 years of experience in the environmental field, providing professional consulting services to private and municipal clients, including the St. Paul Port Authority, City of Waite Park, and the Minnesota Department of Transportation. As a senior engineer, Jill's experience includes preparing plans and construction documents for demolition and brownfield redevelopment projects, feasibility studies for renewable energy facilities, providing coordination of field operations, conducting due diligence Phase I and II ESAs and EAWs, evaluating remediation strategies for soil and groundwater cleanup, and coordinating wetland delineation, mitigation and restoration activities.

RENEWABLE ENERGY PROJECT

- *Methane Digester Feasibility Study, Agricultural Utilization Research Institute, Perham, MN** — Project manager for the Phase I and II Treatability Studies for a public-private community biogas facility. Study elements included evaluation of feedstocks, technology options, thermophilic anaerobic digestion treatment studies, regulator analysis, financing, business structures and environmental analysis.

MNDOT CORRIDOR PROJECT

- *Phase I ESA, US Highway 14 Alignments B &C, Dodge Center to Owatonna, MN** — Principal investigator for MnDOT corridor environmental assessment. Conducted field review and research of two 18-mile alignments. Identified and prioritized recognized environmental conditions (RECs) using preferred MnDOT report format. Prepared database of environmental issues. Utilized GIS mapping to overlay historic aerial photographs on proposed road alignments. Conducted preliminary wetland basin identification. Wrote environmental overview section for transportation planning EIS.

BROWNFIELDS REDEVELOPMENT PROJECTS

- *Soil Management Plan, Andover North Development, Andover, MN** — Project engineer for the redevelopment of a 100-acre brownfield redevelopment project. Created a soil management plan, components including reuse of moderately petroleum-impacted soils on site, removal and screening of debris, tire recycling, asbestos screening and removal, and disposal of highly impacted soils at an approved disposal facility. Created an MPCA-compliant Emissions Control Plan governing asbestos assessment and removal activities. Assisted site designer in development of plans and specifications. Oversaw follow-up monitoring and reporting to MPCA VIC and PBP programs.
- *Corrective Action, Tiger Hills Development, Albert Lea, MN** — Project manager for emergency environmental response at residential development. Provided road construction environmental oversight to the City and a private developer

**While employed by another firm.*

during the discovery of contaminated material in utility right-of-way. Managed initial incident response reporting, sampling and dewatering followed by source characterization and removal. Maintained project development schedule and enabled client to successfully apply for and receive ACRRA cleanup fund reimbursement.

EPA PROGRAM PROJECTS

- *Superfund Quality Assurance Project Plan (QAPP) and Work Plan, City of Ashland Kreher Park/NSP Lakefront MGP Site, Ashland, WI**— Wrote the organization, problem definition and background information sections of the QAPP for the sediment investigation of Operational Unit #4. Provided statistical sampling analysis and sediment investigation sections of the Comprehensive Work Plan. Conducted review of manufactured gas plant historic literature and current research. Provided technical support to the Wisconsin Department of Natural Resources (WDNR).
- *Wisconsin State Superfund, US EPA Great Lakes Legacy Act, Hog Island Inlet Sediment Remediation, Superior, WI**— Project engineer for the preparation of work plan and specifications for the cleanup of polycyclic aromatic hydrocarbons (PAH)-impacted sediments. Negotiated preliminary property access agreements for all impacted parcels. Completed permitting and EA for remedial activities. Assisted interagency coordination between WDNR, USEPA and USEPA contractor.

OTHER PROJECTS

- *Wastewater Lagoon Biosolids Treatability Study, City of Austin & Austin Public Utilities Commission, MN** — Evaluated treatment lagoons for residual impacts from a release of sodium pentachlorophenate (PCP) and dioxin into the sanitary sewer system. Conducted preliminary source review and identified remedial alternatives. Oversaw cleanup implementation including waste disposal tracking.
- *Limited Site Investigation, City of Cambridge Parking Lot, MN**— Tasks included Initial Site Assessment, Vapor Survey and Well Receptor Survey. Completed site characterization for a leaking underground storage tank site acquired by the City. Submitted and achieved site closure based on the investigation results.
- *Protected Species Surveys and Wetlands Inventory, Private Land Owner, Superior, WI** — Delineated 76 wetlands in a 400+ acre undeveloped island at the mouth of the St. Louis River. The study was completed on and around the perimeter of the island to map wetlands, identify high-quality habitat, and locate state and federally protected species. The wetland survey utilized US Corps of Engineers and WDNR wetland typing. The habitat and species reviews utilized modified meander and species area curve methodologies. GPS technology was used to mark and map all identified wetlands, habitats and species.

**While employed by another firm.*

CHRISTIAN T. FORSTER

Environmental Technician III

EDUCATION

B.A., Environmental Studies, Business Management,
St. John's University

CERTIFICATIONS

40-Hour OSHA Hazardous Waste Operations and Emergency Response Training

10-Hour OSHA Construction Safety and Health Training

Hydrogen Sulfide Awareness Training

Adult CPR and First Aid

Mr. Forster has been with Braun Intertec since 2014. Christian is an Environmental Technician focusing on project management and field work primarily for clients requiring environmental due diligence, environmental site assessments (ESA), and oil and gas related investigations. Mr. Forster has completed over 50 Phase I ESAs and has 4 years of Phase II ESA and remediation oversight experience within the commercial, industrial and energy markets. Christian's experience includes project scoping and budgeting, performing field work, authoring reports, and guiding projects through Site closure.

PHASE I ENVIRONMENTAL SITE ASSESSMENT PROJECT EXPERIENCE

- *Garden Grove Apartments, Bismarck, ND* — Served as Project Manager and report author for a Freddie Mac conforming Phase I ESA. Managed field staff for reconnaissance and provided consultation between the client and lender to ensure that environmental due diligence was met pursuant to strict governmental lending requirements.
- *Sakakawea Memorial Hospital, Hazen, ND* —Guided project team and lead field effort to complete site reconnaissance and reporting necessary for the proposed expansion of the Sakakawea Memorial Hospital. This assessment required documentation of multiple properties, which was completed in a timely cost-effective manner.
- *Cross Country Solutions, SD and ND* —Conducted field work to facilitate a multiple property Phase I ESA across South Dakota and North Dakota. The project scope included documenting numerous facilities and warehouses while maintaining a focus on quality, timeliness, and overall project costs.
- *Cain Creek Land Exchange, SD* —Conducted field work efforts for a 28-parcel ESA across the badlands and National Grasslands in southwestern South Dakota. The project objectives relied on a focused and efficient approach which led to a significant reductions in costs associated with the field effort.

ENVIRONMENTAL SITE ASSESSMENT PROJECT EXPERIENCE

- *Former Linhoff Printing, Edina, MN* – Lead field efforts for a soil, groundwater and sub slab vapor assessment of a former printing facility. Site activities included evaluating shallow soils and undocumented fill as well as deep groundwater. Project results lead to the collection of sub slab vapor sample to evaluate vapor intrusion potential from on- and off-site sources.
- *Stub and Herbs/Jimmy Johns, Minneapolis, MN* – Lead field efforts for an environmental assessment on behalf of a potential purchaser. Site activities included evaluating shallow soils and undocumented fill, groundwater conditions, and the collection of sub slab vapor samples to evaluate vapor intrusion potential from on- and off-site sources.
- *Former Auto Service Center UST Cleanup, Sabeka, MN* – Assisted with Limited Site Investigation on a former auto service center and filling station site. Site

activities included subsurface soil investigation, as well as annual groundwater monitoring and report preparation.

- *Minnesota State Community and Technical College, Moorhead, MN* – Oversaw removal of impacted soil associated with former underground storage tanks. Project tasks included environmental sampling, waste profiling, and documenting soil export volumes.
- *Highway 1804 Reconstruction, Williston, ND* —Lead field efforts which included Geoprobe drilling, logging soils, and groundwater sampling and monitoring. This site activities were complicated by high concentration of contamination. The project focus was on characterizing site conditions while ensuring worker health and safety during construction.
- *City of Hebron Elm Street Reconstruction, Hebron, ND* —Lead field efforts which included Geoprobe drilling, lithology logging, and soil sample collection for chemical analysis. This project stemmed from contamination identified through geotechnical investigation that was in close proximity to planned utility corridors. Project management *included mitigating* concerns of worker exposures and determining the ultimate reuse of impacted soils remaining on site.

REMEDIATION PROJECT EXPERIENCE

- *Smoking Butte #1 SWD, Smoking Butte, ND* —Conducted field efforts in remediating a production water brine spill on an active oil and gas well pad. Site activities included identifying and delineating the extent of the impacted area, removing soil that did not meet state criteria, and overseeing the installation of a remediation treatment cell.
- *Former Gas Station Phase II and Underground Storage Tank Removal, Bismarck, ND* —Conducted drilling investigations and UST removal for a site formerly used as a gas station. Tasks included soil and groundwater sampling, confirming the integrity of the former USTs, removal and disposal of impacted soil, and remediation confirmation sampling.
- *SWD Facility #1, Stanley, ND* —Oversaw the excavation and removal of impacted material resulting from a production water brine release. This large-scale project was completed on a cost-sensitive budget which required experienced field direction to keep costs within budget. Field activities included waste profiling and manifest documentation for the remedial efforts as well as managing the reclamation process. Implementation of the Health and Safety Plan was key for success on this project.
- *Duluth Transit Authority, Duluth, MN*— Managed soils screening and waste profiling as a part of a 30,000-ton response action plan implementation. This four-month endeavor included interacting with many different clients and successfully coordinated multi-party soil remediation efforts.

DOUGLAS J. BERGSTROM, PG, CHMM

Principal Scientist

EDUCATION

B.E.S., Geology and Geophysics
University of Minnesota

CERTIFICATIONS

MN Professional Geologist
No. 30294

AIPG Certified
Professional Geologist
No. 8392

Certified Hazardous Materials Manager
No. 8997

U of M Erosion and Sediment Control SWPPP Site Management Certification

U of M Erosion and Sediment Control SWPPP Design Certification

40-hour HAZWOPER Certification and annual refresher training

PROFESSIONAL AFFILIATIONS

American Institute of Professional Geologists

Minnesota Ground Water Association

Institute of Hazardous Materials Management

Mr. Bergstrom has more than 40 years of professional experience, and for over 30 years has been a practicing environmental professional. During this time, he has acquired broad professional experience from which to draw, in both diversity of regulatory programs and their application to a variety of client types, facilities and projects. Having served in senior management positions, he is also very experienced in contracts, risk management, employee health and safety, business administration, operations and planning. He has extensive technical and project management experience in the following areas:

STORM WATER POLLUTION PREVENTION PLANS (SWPPP)

Doug has extensive experience in stormwater management during active construction activities as well as managing stormwater at operating commercial sites. He has certifications in both SWPPP design and site management, and has played significant roles in construction stormwater management activities of both the I-35W bridge reconstruction as well as the Minnesota Twins and Minnesota Vikngs stadium construction.

ENVIRONMENTAL COMPLIANCE EVALUATIONS AND ENVIRONMENTAL MANAGEMENT SYSTEM AUDITS

He has performed hundreds of environmental compliance and environmental management system audits on both private and public facilities, and is knowledgeable in a wide range of regulatory programs.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) ENVIRONMENTAL EVALUATIONS AND MITIGATION

He has served as project manager on a large number of environmental review projects, ranging from small developments to very large interstate pipeline projects. He has extensive experience in all aspects of this work, including environmental review document preparation, mitigation strategies and related natural resources permitting.

He also has extensive experience in contamination investigation and remediation, environmental property evaluations, environmental planning, hazardous waste evaluations and permitting, underground storage tank management, field investigations and environmental monitoring, environmental permitting, wellhead protection programs, surface and subsurface geologic mapping and evaluations, brownfield redevelopment, regulatory negotiations, and environmental risk management.

MARK A. CIAMPONE, PG

Associate Principal, Senior Scientist

EDUCATION

M.S., Geochemistry
University of Cincinnati

B.A., Geology
University of Minnesota, Morris

PROFESSIONAL REGISTRATIONS

MN Professional Geologist
No. 30368

CERTIFICATIONS

40-Hour HAZWOPER Certification and Annual Refresher Training

OSHA 29 CFR 1910.120
Hazmat Training

OSHA 29 CFR 1910.132
Personal Protective Equipment Training

OSHA 29 CFR 1910.134
Respiratory Protection Training

OSHA 29 CFR 1910.146
Confined Space Entry Training

PROFESSIONAL AFFILIATIONS

National Groundwater Association

Mark is responsible for the management of Phase I and II Environmental Site Assessments (ESAs); hydrogeologic evaluations related to site assessments; remedial investigations for underground and above-ground storage tank sites; and investigation of commercial/industrial Browfield sites. Mark is also responsible for evaluating, designing and implementing soil and groundwater remediation plans. Mark is a Phase I ESA Practice Leader and a Team Leader in our Brownfields group.

Years of environmental testing firm experience: 22

PROJECT EXPERIENCE

Mark has more than 22 years of experience in managing soil and groundwater investigation projects for voluntary cleanup and environmental due diligence related to commercial property transactions.

Specific project responsibilities include:

- Developing and implementing investigation work plans, Response Action Plans (RAPs) and contingency plans.
- Communicating daily with regulatory personnel and enrolling sites in Minnesota's Voluntary Investigation and Cleanup (VIC) program.
- Managing clients, developing and administering project budgets.
- Writing proposals and final reports, supervising field implementation and providing senior report review.
- Performing Phase I ESAs in accordance with American Society for Testing and Materials (ASTM) Standard for Commercial Real Estate Transactions, Practice No. E-1527.

Selected project experience includes:

- *Mixon, Inc. Due Diligence and Cleanup, St. Paul, MN* — Conducted Phase I and II ESAs, developed RAP and Construction Contingency Plan. Other work included hazardous materials surveys, lead dust abatement oversight and demolition specifications for disposal of building materials designated as hazardous waste.
- *Minneapolis, MN* — Managed the investigation and cleanup of a former bus garage and auto repair facility. Activities included conducting a Phase I ESA, Phase II ESA and preparing and implementing a development response action plan (DRAP). The site was redeveloped into transition housing by a local charity organization. A site closure-No Action letter was obtained due to successful DRAP implementation.

- *St. Louis Park, MN* — Managed field implementation of the cleanup of a creosote-contaminated property that received waste runoff from an adjacent former wood-preservation facility. Conducted Phase I and Phase II ESAs, implemented the RAP and procured initial liability assurance letters necessary to start site development. The site was developed into a luxury apartment complex.
- *Edina, MN* — Conducted Phase I ESA of a former sheet metal fabrication facility, identifying several recognized environmental conditions. Conducted Phase II ESA and subsequent Remedial Investigation (RI) at the site, identifying the presence, extent and magnitude of petroleum contamination in the area from several former bulk aboveground storage tanks (ASTs). The RI results were used to obtain site closure from the MPCA.
- *Minneapolis, MN* — Managed Phase I and Phase II ESAs of a 5.5-acre parcel, formerly occupied by an electric machinery company and a foundry. Several areas of non-petroleum and petroleum-related contamination were identified. Designed and implemented a vapor intrusion soil investigation to evaluate the potential for vapor migration into the existing structures. Based on the findings, developed a Response Action Plan (RAP) that included installation of a soil vapor extraction system to mitigate vapor issues. Another component was a bituminous cap over unpaved areas of the site, restricting access to the contaminants. Assisted with procurement of State and County-funded environmental cleanup grants. Site is currently in the voluntary program and activities will include implementing the RAP and working toward No Action status.
- *Golf Course, Plymouth, MN* – Managed Phase I ESA and subsequent soil, soil vapor and groundwater investigations of a golf course where low areas had historically been backfilled with solid wastes and impacts from chlorinated solvents had been identified. A RAP was prepared and implemented to remove debris-fill and soil vapor impacts defined. Vapor mitigation controls installed in Area of Concern. Regulatory closure issued.
- *The Stockyards Dump and The Stockyards Demolition Landfill., South St. Paul* – Managed completion of Phase I ESA, Phase II ESA and preparation of RAP for cleanup associated with redevelopment of this Site. This site received waste from the Saint Paul Union Stockyards that consisted of livestock bedding and paunch manure, abattoir offal, animal carcasses, and refuse; and demolition and construction debris (wood, metal, glass, plastics) as well as sanitary, industrial or hazardous waste disposal during later use as a demolition landfill. State grant funds were awarded to the site and cleanup is scheduled for the summer of 2018.

Appendix 2
Staff Matrix Tables

BRAUN INTERTEC

The Science You Build On.

Experience Matrix - Category A

Personnel Levels - Category A	Qualified Staff Classification	OSHA Certification(s)	Years of Service with Braun Intertec/Total Years of Experience	Education	Licenses and Certifications
BLOOMINGTON					
Stephen Jansen, PG	Project Manager; Scientist II;	OSHA HAZWOPER	Braun Intertec: 3 Total: 30	B.A Geology M.S. Geology	Professional Geologist (MN, WI)
Mark Keefer, PG	Project Manager; On-Site Inspector Scientist I/II; QA/QC Officer	OSHA HAZWOPER OSHA Site Supervisor	Braun Intertec: 6 Total: 15	B.A. Environmental Geology & Technology M.S. Hydrogeology	Professional Geologist (MN)
Steve Norris	Project Manager; Scientist I/II; On-Site Inspector; QA/QC Officer	OSHA HAZWOPER OSHA 30-hr Construction OSHA Site Supervisor	Braun Intertec: 3 Total: 11	B.S. Chemistry & Criminology	Certified Safety Professional (CSP) ICS 100/200/300/400/700/800
Imants Pone	Project Manager; On-Site Inspector Scientist I/II	OSHA HAZWOPER	Braun Intertec: 3 Total: 18	B.S. Natural Resources & Env. Studies	Corrective Action Project Manager (TX)
Becca Primus	Project Manager; On-Site Inspector Scientist I/II; GIS/CADD Specialist	OSHA HAZWOPER Confined Space	Braun Intertec: 3 Total: 10	B.A. Chemistry	CADD Certificate
Chris F. Thompson, PE	Project Manager; Engineer III/IV	OSHA HAZWOPER	Braun Intertec: 6 Total: 40	M.C.E., Env. and Water Resources B.C.E., Env. and Water Resources	Professional Engineer (MN, NE, IN, IL)
Dan Barrett, PG	Scientist II	OSHA HAZWOPER	Braun Intertec: 3 Total: 30	B.S. Geology M.S. Geology	Professional Geologist (MN, WI)
Daniel DeJoode, PhD	ERA II/III	OSHA HAZWOPER	Braun Intertec: 1 Total: 25	B.S. Agronomy M.S. Botany PhD Ecology	Wetland Delineator
Keith Linton	Scientist II; HHRA II/III	OSHA HAZWOPER	Braun Intertec: 1 Total: 25	B.S. Environmental Science M.S. Environmental Science	Board Certified Environmental Scientist (BCES) in Environmental Toxicology, Certified Hazardous Materials Manager (CHMM)
Jeff Arndt, PG	Field Technician; Scientist I/II; On-Site Inspector	OSHA HAZWOPER OSHA 30-hr Construction	Braun Intertec: 3 Total: 10	B.S. Geology	Professional Geologist (MN), Asbestos Inspector
Grant Auddette	Field Technician	OSHA HAZWOPER Confined Space	Braun Intertec: 1.5 Total: 1.5	B.S. Hydrology	---
Julie Baumeister	Field Technician; Scientist I	OSHA HAZWOPER	Braun Intertec: 3 Total: 4	B.S. Geology M.S. Geology	Geologist in Training, Asbestos Inspector
Brett Bertram	GIS/CADD Specialist	---	Braun Intertec: 19 Total: 19	B.A. Landscape Architecture	Certified Professional in AutoCAD/3D
Kelly Brown	Scientist I/II	OSHA HAZWOPER	Braun Intertec: 3 Total: 30	B.S. Geological Engineering	Lead Risk Assessor, Asbestos Inspector
Tom Einberger	Field Technician; Scientist I	OSHA HAZWOPER Confined Space	Braun Intertec: 3 Total: 6	B.A. Environmental Studies	Asbesots Inspector
Cole Erickson, PE	Field Technician; Scientist I; Engineer I	OSHA HAZWOPER	Braun Intertec: 3 Total: 6	B.S. Civil Engineering	Professional Engineer (MN)
Casey Farrel	GIS/CADD Specialist	---	Braun Intertec: 3 Total: 7	B.S. Geography	MS Certificate in GIS
Rich Fons	Field Technician; Scientist I	OSHA HAZWOPER	Braun Intertec: 3 Total: 6	B.S. Geology	Asbestos Inspector
Steve Hodek	Field Technician; Scientist I/II	OSHA HAZWOPER Confined Space	Braun Intertec: 3 Total: 20	B.S. Environmental Studies	---
Micky Hubanks	QA/QC Officer	---	Braun Intertec: 20 Total: 22	B.S. Chemistry	---
Ken Larsen, PE, PG	Engineer II/III/IV	OSHA HAZWOPER	Braun Intertec: 3 Total: 30	B.S. Geological Engineering	Professional Engineer (MN, IA, WI, TX), Professional Geologist (MN, WI)
Steve Luth	Field Technician; Scientist I/II; On-Site Inspector	OSHA HAZWOPER Confined Space	Braun Intertec: 3 Total: 11	B.S. Geology M.A. Buisiness Administration	Asbestos Inspector, Asbestos Site Supervisor, Lead Risk Assessor, Lead Project Designer
Chris D. McElligott, PE	Engineer II/III/IV	OSHA HAZWOPER OSHA Site Supervisor Confined Space	Braun Intertec: 26 Total: 31	M.S. Geological Engineering	Professional Engineer (MN, WI, IA, KS)
Timothy Molitor	Field Technician; Scitentist I; On-Site Inspector	OSHA HAZWOPER Confined Space	Braun Intertec: 4 Total: 4	B.S. Geology	Asbestos Inspector
Travis Pennings	Engineer I/II; On-Site Inspector	OSHA HAZWOPER Confined Space	Braun Intertec: 10 Total: 10	B.S., Environmental Engineering	Professional Engineer (MN), Asbestos Inspector, SWPPP Designer, SWPPP Construction Management, SWPPP Inspector
Bruce Schaepe, PE	Engineer I/II; QA/QC Officer	OSHA HAZWOPER	Braun Intertec: 3 Total: 23	B.S. Geoscience M.S. Civil Engineering	Professional Engineer (MN, WI)
DULUTH					
Samantha Schmidt	Field Technician; Scitentist I	OSHA HAZWOPER	Braun Intertec: 2.5 Total: 4	B.s. Geology	Asbestos Inspector
FARGO					
Josh Kadrmas, PE	Scientist I/II; Engineer I/II' On-Site Inspector	OSHA HAZWOPER OSHA Site Supervisor OSHA 10-hr Construction	Braun Intertec: 2 Total: 18	B.S. Civil Engineering B.S. Biological Sciences	Professional Engineer (MN, ND, MO), SWPPP Designer (MN)
Courtney Laney	Field Technician; Scitentist I; On-Site Inspector	OSHA HAZWOPER OSHA 10-hr Construction	Braun Intertec: 6 Total: 6	B.S. Geology	Lead Risk Assessor, Asbestos Inspector

Experience Matrix - Category A

Personnel Levels - Category A	Qualified Staff Classification	OSHA Certification(s)	Years of Service with Braun Intertec/Total Years of Experience	Education	Licenses and Certifications
HIBBING					
Ted Hubbes, PG	Field Technician; Scientist I/II; On-Site Inspector	OSHA HAZWOPER Confined Space	Braun Intertec: 19 Total: 26	B.S. Geology	Professional Geologist (MN, WI), CHMM, Asbestos Inspector, Monitoring Well Contractor
LA CROSSE					
John Wyciskalla, PG	Field Technician; Scientist I/II; On-Site Inspector	OSHA HAZWOPER Confined Space	Braun Intertec: 13 Total: 23	B.S. Geology	Professional Geologist (MO, KS)
MANKATO					
Robert Nordby	Scientist I/II; Engineer I/II	OSHA HAZWOPER	Braun Intertec: 17 Total: 17	B.S. Mechanical Engineering	Asbestos Inspector, Asbestos Site Supervisor
ROCHESTER					
Alex Boecher	Field Technician; Scientist I; On-Site Inspector; Engineer I/II	OSHA HAZWOPER	Braun Intertec: 4 Total: 7	B.S. Physics M.S. Geological Engineering	Professional Engineer (MN), Asbestos Inspector
Jill Mickelson, PE	Engineer I/II/III; On-Site Inspector	OSHA HAZWOPER OSHA Site Supervisor	Braun Intertec: 8 Total: 24	B.S., Environmental Engineering	Professional Engineer (MN, WI, ND), Asbestos Inspector, SWPPP Designer and Construction Manager
ST. CLOUD					
Christian Forster	Field Technician; Scientist I	OSHA HAZWOPER	Braun Intertec: 4 Total: 4	B.A. Environmental Studies	---
ST. PAUL					
Douglas Bergstrom, PG	Scientist II	OSHA HAZWOPER Confined Space	Braun Intertec: 23 Total: 42	B.E.S. Geology and Geophysics	Professional Geologist (MN), Certified Hazardous Materials Manager, SWPPP Designer, SWPPP Site Manager
Mark Ciampone, PG	Scientist II	OSHA HAZWOPER	Braun Intertec: 15 Total: 20	B.A. Geology M.S. Geochemistry	Professional Geologist (MN)

Personnel Classifications Matrix - Category A

| Category A Personnel Classification Matrix | Project Manager | | | | | | | | | | | | GIS/CADD Specialist | | | | | | | | | | | | Field Technician | | | | | | | | | | | | Scientist I | | | | | | | | | | | | Scientist II | | | | | | | | | | | | Engineer I | | | | Engineer II | | | | | | | | Engineer III | | | | | | | | | | | |
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Personnel Classifications Matrix - Category A

Category A Personnel Classification Matrix	Engineer IV								On-Site Inspector (OSI)						Quality Assurance/Quality Control Officer							Human Health Risk Assessor II							Human Health Risk Assessor III							Ecological Risk Assessor 2							Ecological Risk Assessor 3						
	Bachelors or Masters Degree in Chemical, Civil (including geomechanics, structural and water resources engineering) Environmental, Electrical, Mechanical, or related engineering field	Minimum of twenty years of recent experience working in the area of environmental engineering or related field.	Advanced knowledge of the principals of environmental engineering including remedial design, treatment systems and/or	Exceptional written and verbal communication skills.	Able to operate with latitude of responsibility requiring no supervision.	Exceptional abilities to summarize and present data, and make clear recommendations for action.	Current Minnesota Erosion/Sedimentation Control Certification	Licensed Professional Engineer in Minnesota, as specified by the MN Board of AELSLAGID	Vocational Technical Degree or at least five years experience as a Field Technician. Bachelor's Degree counts for two years of experience.	Experienced with field instrumentation and equipment	Competent with sampling protocol for soil, ground water, surface waters, sediment and air media	Understanding of basic mechanical operations and systems in the field	Knowledgeable of relevant requirements and comply with the site-specific QAPP and site-specific HASP	Knowledgeable and able to follow the requirements of all MPCA and MDA guidance and QAPPs.	Bachelors Degree in Chemistry, Microbiology, or closely related field	Five years of professional laboratory experience, two of which shall include environmental analysis with emphasis on laboratory QA/QC program management	Knowledgeable of the requirements of the "Minnesota Pollution Control Agency Quality Management Plan", and ability to be knowledgeable of the requirements of any future revisions of this document	Knowledgeable of applicable state and federal standard methods for the analysis of environmental samples, particularly water and soil; principles and practice of laboratory quality assurance and quality controls; sampling techniques and statistical analysis methods; quality assurance; and data management process techniques	Skilled in performing standard QA/QC evaluation procedures, evaluating data using statistical analysis methods, interpreting results of data analysis, and making appropriate recommendations	Must be able to develop and implement a quality assurance program for sample collections, reports, work with a variety of parties to plan schedule, organize and coordinate sampling g for Contractor field staff	Knowledge of US EPA QAPP Guidance and US EPA CLP sampling protocol and procedures	Masters Degree in Toxicology, Environmental Fate Chemistry or Risk Assessment, or a related field as determined by the MPCA/MDA	Minimum of three years of experience in performing and/or reviewing human risk assessments	Expertise in fate and transport modeling and highly developed computer skills desirable	Strong written and verbal communications skills required	Expertise in human toxicological hazard assessment, environmental fate and transport, environmental exposure modeling and risk assessment for chemicals	Expertise in conducting and reviewing baseline risk assessments in accordance with EPA Risk Assessment Guidance	Expertise in evaluating indoor exposure and risk from inhalation of chemical vapors due to vapor intrusion from soil and ground water	Ph.D. in Toxicology, Environmental Fate Chemistry or Risk Assessment, or a related field as determined by MPCA/MDA, and a minimum of six years of experience in performing and/or reviewing human health risk assessments; or a M.S. in Toxicology, Environmental Fate Chemistry or Risk Assessment and a minimum of eight years of experience in performing and/or reviewing human risk assessments	Expertise in fate and transport modeling and highly developed computer skills desirable	Strong written and verbal communications skills required	Expertise in human toxicological hazard assessment, environmental fate and transport, environmental exposure modeling and risk assessment for chemicals	Expertise in conducting and reviewing baseline risk assessments in accordance with EPA Risk Assessment Guidance	Expertise in evaluating indoor exposure and risk from inhalation of chemical vapors due to vapor intrusion from soil and ground water	M.S. in Ecology, Toxicology, Biology, or other relevant field	Minimum of 3 years experience in performing and/or reviewing ecological risk assessments	Expertise in terrestrial and/or aquatic ecology and eco-toxicology	Understands the concepts and principles of toxicology	Knowledgeable of standard quantitative and qualitative risk assessment practices to analyze potential ecological risks	Experience working in a variety of regulatory environments (e.g., CERCLA, RCRA, State Regulations)	Familiar with development of toxicity-based benchmark values such as water quality criteria and sediment quality guideline values	Familiar with the performance of toxicity tests and interpretation of results	Wetland delineation	Ph.D. in Ecology, Toxicology, Biology, or other relevant field and a minimum of three years experience in performing and/or reviewing ecological risk assessment or M.S. in Ecology, Toxicology, Biology or other relevant field and a minimum of seven years experience in performing and/or reviewing ecological risk assessments	Expertise in terrestrial and/or aquatic ecology and eco-toxicology	Understands the concepts and principles of toxicology	Knowledgeable of standard quantitative and qualitative risk assessment practices to analyze potential ecological risks.	Experience working in a variety of regulatory environments (e.g., CERCLA, RCRA, State Regulations).	Familiar with development of toxicity-based benchmark values such as water quality criteria and sediment quality guideline values	Familiar with the performance of toxicity tests and interpretation of results
BLOOMINGTON																																															
Stephen Jansen, PG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mark Keefer, PG	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Steve Norris	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Imants Pone	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Becca Primus	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chris Thompson, PE	X	X	X	X	X	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dan Barrett, PG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Daniel Dejoode, PhD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Keith Linton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jeff Arndt	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grant Auddette	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Julie Baumeister	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brett Bertram	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kelly Brown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tom Einberger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cole Erickson, PE	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Casey Farrel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rich Fons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Steve Hodek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micky Hubanks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ken Larsen, PE	X	X	X	X	X	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Steve Luth	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chris McElligott, PE	X	X	X	X	X	X	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Timothy Molitor	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Travis Pennings, PE	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bruce Schaepe, PE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DULUTH																																															
Samantha Schmidt	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FARGO																																															
Josh Kadrmus, PE	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Counrtey Laney	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HIBBING																																															
Ted Hubbes, PG	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LA CROSSE																																															
John Wyciskalla, PG	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MANKATO																																															
Robert Nordby	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROCHESTER																																															
Alex Boecher	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jill Mickelson, PE	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST. CLOUD																																															
Christian Forster	-	-	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST. PAUL																																															
Douglas Bergstrom, PG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mark Ciampone, PG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-