



GEOTECHNICAL • CONSTRUCTION MATERIALS/NDT • ENVIRONMENTAL TESTING • INDOOR AIR QUALITY

GEOtek 25 YEAR ANNIVERSARY

This year, GeoTek Engineering & Testing Services, Inc. is celebrating its 25th anniversary. The company was founded in March 1988 by Mr. Ralph E. Lindner, PE, and Mr. Garry Scholz.

Over the years, GeoTek has provided services in the areas of geotechnical engineering, construction materials testing, environmental consulting, and industrial hygiene. These services have been provided primarily in South Dakota, Iowa, Minnesota, and Nebraska. Our staff has grown to 40 employees, which includes engineers, geologists, chemists, technicians and support staff.

Originally, the company focused on providing geotechnical exploration and construction materials testing for area customers.

Some of the first employees hired were secretary Ms. Kathy Kroon and drill crew chief Mr. Ray Hagedorn. Their employment and efforts were critical to the early success of the company.

The early years of the company saw tremendous growth. In fact, in October 1993, GeoTek was listed #151 of the fastest growing private companies in America. Also in 1993, Mr. Garry Scholz left the company, leaving Mr. Ralph E. Lindner, PE, the sole owner.

Due to the tremendous volume of environmental projects and testing requirements from underground storage tank projects in the early years of the company, an analytical chemistry laboratory was

established in 1991. Initially, only water samples were analyzed, but the lab quickly expanded into soils and air analysis. Analytical parameters were volatile and semi-volatile substances (i.e. gasoline, diesel fuel, and motor oil).

The company was originally located in leased space on E. 52nd Street North, in the industrial park located northeast of the Sioux Falls Airport. The early 1990s saw multiple expansions to that leased space, but we eventually ran out of room to expand. In 1993, the company



bought a nearby spec building from the Sioux Falls Development Foundation. After the interior of the 30,000 square foot building was constructed/ finished to GeoTek's needs, the company moved in on August 26, 1994.

The first drill rig (Mobile B-50) was purchased in May 1988. Due to an increasing backlog of drilling projects, a second drill rig (Mobile B-57) was purchased and a second crew was hired in 1996. A third drill rig (another Mobile B-57) was purchased in 1998, and the B-50 was relegated to back-up duty. Recently, additional drilling

capabilities have been added for special project conditions.

Increasing staff numbers and project demands were the primary factor in Mr. Dan Hanson, PE, being promoted to General Manager of the company in 2005.

In 2007, Mr. Jason Cook met the education and experience requirements to become the company's first Certified Industrial Hygienist.

Today, the single largest segment of our business is construction materials testing, led by Mr. Shane Lindner.

Environmental testing projects in South Dakota and Iowa are the second and third largest segments, respectively. Geotechnical exploration projects, led by Mr. Jared Haskins, PE, are also a significant portion of the overall business.

We are very proud of our hard working and dedicated employees, and extremely grateful for our many loyal customers from across the region. We look forward to providing engineering and testing services for the next 25 years and beyond!



909 East 50th Street North
Sioux Falls, SD 57104

Phone: 605-335-5512
Toll Free: 800-354-5512
Fax: 605-335-0773

www.geotekeng.com

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*GeoTek is celebrating 25 years.
This was our Ribbon Cutting in 1988.*

GEOTEK COMPLETES BROWNFIELDS PROJECT IN ABERDEEN

Plans are underway for the City of Aberdeen to redevelop the former Bethlehem Lutheran School property into a new city library. In 2011, the City of Aberdeen applied to the South Dakota Department of Environment and Natural Resources (DENR) Brownfields Program for assistance in addressing suspected contaminants as part of the redevelopment plans. The DENR utilized Brownfields Section 128(a) to fund the assessment, characterization, and remediation activities outlined below to facilitate redevelopment. In December 2011, GeoTek was hired by DENR to conduct the Targeted Brownfields Assessment.



Former Bethlehem Lutheran Property, Aberdeen, SD.

The site consisted of a two-story brick building, with about 10,000 square feet per floor. Built in 1955, the interior consisted of former classrooms, restrooms, halls, a boiler room, and other areas. A former site church building was razed in 2005. The City of Aberdeen is the property owner.

The Brownfields work included a Phase I Environmental Site Assessment, an asbestos survey, surficial soil sampling for possible lead concentrations, and a subsurface assessment of soil and groundwater for potential petroleum concerns. The Phase I Environmental Site Assessment

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CONSTRUCTION MATERIALS LAB ACCREDITATION PROGRAM

As the demand for construction materials testing has increased over the years, we have taken the effort to maintain our testing laboratory at levels that meet or exceed industry standards. One way we accomplish this is by allowing our laboratory to be reviewed by national agencies. In 2012, our lab was visited by representatives of both the US Army Corps of Engineers and the Cement and Concrete Reference Laboratory (CCRL, a division of the AASHTO Materials Reference Laboratory (AMRL)).

During the lab assessment, the agency will typically review various items to assure compliance with national standards. First, they will observe the performance of select test procedures. Then they will examine the equipment used to perform the selected procedures and verify that the proper calibration procedures

are being followed and documented. Finally, the agency will review our policies, procedures, and documentation detailed in our laboratory quality manual. At the end of the assessment, we are provided feedback on areas where updates, if necessary, should be made to our quality system.

In addition to the laboratory assessments, we also participate in a national proficiency testing program through AMRL and CCRL. Currently, we participate in proficiency testing related to soils, aggregates (course and fine), concrete, and hot mix asphalt. AMRL/CCRL provides a sample of a select material to every participating lab. The labs are asked to prepare and perform the related test procedures according to national standards (AASHTO or ASTM). A few weeks after submitting our results, we are able to see how close our results

compared to a national average.

These are just a few of many examples to help illustrate the type of conscientious testing program GeoTek maintains. If there are any questions in regards to our accreditations, please feel free to contact our office for more information.



SANFORD FIELDHOUSE

The Sanford Fieldhouse is a 62,000 square foot premier indoor sports facility for local, regional and national athletic training, soccer, baseball, softball, football, co-ed sports leagues and POWER fitness programs. The Fieldhouse is located at the Sanford Youth Sports Complex in Sioux Falls, South Dakota.

The facility is a slab-on-grade structure with pre-cast and structural steel framing. It was constructed by Fiegen Construction Company in 2012.

GeoTek's initial role for the

project was to perform test borings as part of a geotechnical exploration program. Laboratory tests were performed on select samples to aid in determining the index and strength properties of the underlying soils at the site. The tests included moisture content, dry density, Atterberg limits (liquid and plastic limits) and unconfined compressive strength. A report was then prepared containing the results of the field and laboratory tests as well as our geotechnical engineering opinions and

recommendations regarding the construction of the facility.

GeoTek provided services for excavation observations, compaction testing of fill materials, concrete testing during placement of the footings, foundation walls and floor slabs, moisture emission testing on the floor slab, structural steel inspection and masonry inspection. GeoTek also performed visual inspection on the concrete steel reinforcement and weldable steel reinforcement installed within the grade beams.



UPTOWN & DOWNTOWN SIOUX FALLS RE-DEVELOPMENT

The downtown area of Sioux Falls has been undergoing significant redevelopment in the past 15 to 20 years. The newer “uptown” area in the Phillips Avenue corridor, north of 5th Street, has also had significant redevelopment since the extension of Phillips Avenue. Historical use has created a host of environmental challenges for renovation and redevelopment in these areas. But whether it’s uptown or downtown, GeoTek’s environmental team can help define and manage these challenges.

Releases from several former gas stations, drycleaners, and auto repair shops have resulted in an area of subsurface petroleum impacts in portions of downtown. Contaminated groundwater has affected foundation dewatering drain lines in existing buildings. Newer buildings that are using groundwater for building heating and cooling have encountered solvents in groundwater and have had to modify or add additional permits to their geothermal systems. Dewatering of excavations for new construction is complicated by contaminated groundwater permitting and discharge testing or treatment. Contaminated soil testing and disposal has also been

part of many new construction projects in the area.

Do you remember the old Sportsman Bar, the multi-colored Carpet Market building, or former Winger’s Auction building along North Main Avenue? Renovation or demolition of buildings can encounter asbestos materials, lead-based paint, or mold that must be addressed as part of renovation or demolition. Excavations for new buildings have encountered petroleum tanks, contamination, and rubble.

How about the “Zip that didn’t tip”? The concrete Zip Feed Mill along East 6th Street was demolished in 2005, partially by explosives, and partially by crane and wrecking ball. Asbestos building materials were defined and removed before demolition. The Cherapa Place office building (occupied by Howalt-McDowell Insurance, CorTrust Bank, Wild Sage Grille, and others) was then constructed on the west edge of the former Zip Feed Mill property.

There have also been many new public building projects completed, including the Minnehaha County Courthouse building in 1996 (plus two new floors in 2007-2008), the Minnehaha County Health and Human Services Building, the

City of Sioux Falls police department building, and the 33-unit Safe Home at 3rd & Minnesota. Public building renovations include the Minnehaha County Sheriff/Jail building, the Coliseum/Multicultural Center, the Washington Pavilion of Arts and Science, the city’s Carnegie Building, and many others. In 1991, there was a vision that the



downtown area of Sioux Falls should be connected to the city’s namesake – Falls Park! However, there was no direct route between downtown and the falls. Thus, the “Phillips to the Falls” concept was born. One major property near Falls Park was the former Pitts Salvage Yard, a 17-acre site that had been used for scrap metal operations for 81 years. Part of the operations included lead-acid battery storage and recycling. In 2001, the City of Sioux Falls purchased the Pitts Salvage Yard. An EPA Brownfields assessment grant was awarded to the City of Sioux Falls in 1996, with most work occurring after purchase in 2001. A Brownfields grant for cleanup was awarded in 2004, and a \$900,000 cleanup effort was conducted. New development in the area is assisted by planning construction away from heavier impacts or by finding the most cost effective cleanup strategy.

The Schoeneman’s Lumber property has also been redeveloped. In 2011, the Lumber Exchange Building (occupied by CNA Surety, Lloyd Companies, Josiah’s Coffeehouse & Café, Lindquest & Venum attorneys, and others) was constructed on the south end of the former lumberyard. Now, a multi-story Hilton Hotel building is under construction on the north part of the former lumberyard. Challenges have included permitting and treatment of impacted construction dewatering groundwater and impacted soil testing and disposal.

There have also been many changes along the Big Sioux River. The Central Main Sewer Line was replaced along the river front over the 2010 and 2011 construction seasons. In 2011 and 2012, significant landscaping was constructed along portions of the river’s east bank. In 2012, the River Ramp parking garage straddling the Big Sioux River was demolished. The Raven Industries building on East 6th Street by the Big Sioux River is currently undergoing a \$15 million renovation, and there are also plans for riverfront and pedestrian walkway renovation in the area. Semi-volatile contaminants from the upstream former coal gasification plant at Fawick Park have required testing and disposal of soils along the river banks in these areas.

In the near future, there is planned removal of railroad tracks/switching yards for subsequent redevelopment. Federal funds were designated for the project in 2006, with negotiations now nearing completion.

Whether it is environmental testing and permitting, geotechnical engineering, or construction materials testing, GeoTek Engineering & Testing Services, Inc. has had some level of involvement in each of the above projects and many more in downtown Sioux Falls. In retrospect, uptown and downtown are thriving in Sioux Falls.



BEL BRANDS USA CONSTRUCTS CHEESE PLANT IN BROOKINGS

As the seasons change, so does the Bel Brands site in Brookings, SD. GeoTek Engineering is proud to be part of the new Bel Brands facility under construction.

GEO TEK'S ROLE

GeoTek's initial role for the project was to perform test borings as part of a geotechnical exploration program. Laboratory tests were performed on select samples to aid in determining the index and strength properties of the underlying soils at the site. The tests included moisture content, dry density, Atterberg limits (liquid and plastic limits) and

unconfined compressive strength. A report was then prepared containing the results of the field and laboratory tests as well as our geotechnical engineering opinions and recommendations regarding the construction of the building and pavement areas. GeoTek was later hired to perform excavation observations, compaction testing of the fill materials and concrete testing during the placement of the footings, foundation walls and slabs. This year, GeoTek will provide observations and testing of the subgrade soils in the pavement areas. Testing of the pavement will also be performed.

ABOUT THE PROJECT

Bel Brands USA, headquartered in Chicago, is investing approximately \$100 million to build a new 170,000-square foot Mini Babybel manufacturing facility on a 48-acre site along 34th Avenue near the I-29 corridor in Brookings, SD. Bel Brands manufactures and markets The Laughing Cow cheese wedges and Mini Babybel – America's #1 branded snacking cheese, as well as Boursin, Mercks, Kaukauna and other natural and gourmet cheese spreads. Bel Brands USA currently has two other production facilities

in the US, located in Leitchfield, KY, and Little Chute, WI.

Bel Brands expects to hire more than 200 employees when the first phase of the plant becomes fully operational by mid-2014. Phase 1 of the project will have a production capacity of approximately 22 million pounds or 10,000 metric tons of Mini Babybel. The second phase of the plant, which is contingent on anticipated increased market demands, is envisioned to be built in 2016-2017 and will bring another 200 jobs to the area.



June 6, 2012



October 2, 2012



November 16, 2012



January 7, 2013

FUGITIVE EMISSIONS

In October 2012, GeoTek Engineering was contacted by an out-of-state manufacturer of specialty clothing and other fabric products. The company had recently started operating a newly purchased laser fabric cutter in their manufacturing facility. The laser cutter uses a high energy carbon dioxide laser to cut precise (often intricate) patterns in fabric materials. Employees had expressed concerns that emissions from the cutting of special fabrics may be exposing them to potentially harmful chemicals.

Due to the proprietary nature of the materials being cut with this device, very limited information was publically available on what combustion products were potentially being generated in this process. GeoTek personnel designed a sampling plan that would measure employee exposure to selected chemicals as well as scan the instrument (while



operating) for fugitive emissions of smoke (as airborne particulates). The laser cutter was already equipped with local exhaust ventilation; however, employees noted a distinct odor during operation and a light haze in the air after prolonged use.

One employee was outfitted with a personal sample pump and media to conduct sampling and analysis for potential chemical



emissions. Sampling was conducted during normal operation of the laser cutter. During laser operation, GeoTek

personnel monitored the area for ultra-fine particulates using a TSI P-Trak direct reading meter. The P-Trak measures airborne particulates (<0.1 um in size) and is very effective at detecting smoke and vehicle exhaust etc.

The ultra-fine particulate monitoring resulted in the discovery of fugitive emissions escaping from the vented cutting table in several locations during the cutting process. Some recorded particulate levels exceeded 335,000 pt/cc (particles/cubic centimeter). Typical indoor ultra-fine particulate levels (within home and office environments) generally range from 2,000-5,000 pt/cc. Upon being informed of the results, the company re-engineered the local exhaust ventilation for the laser cutter to more thoroughly capture and remove fume and vapor emissions, and reduce employee exposure.

IOWA ENVIRONMENTAL CLEANUP

In November 2012, GeoTek assisted with the completion of a petroleum contaminated soil excavation at a former gasoline station. Prior to the excavation, GeoTek completed an environmental assessment to meet the requirements of the Iowa Department of Natural Resources (IDNR). The assessment activities included the advancement of soil borings, installation of groundwater monitoring wells, and the

collection and analysis of soil and groundwater samples. The resulting soil and groundwater analytical data was used to complete Risk Based Corrective Action (RBCA) modeling. This data is used to estimate risk associated with the identified contamination as it relates to receptors of concern at or near the site. Free phase petroleum product (gasoline) was identified in the subsurface soils at the site. Subcontractors were used for

the soil removal and disposal. The excavation resulted in the removal of approximately 7,000 cubic yards of contaminated soil. The petroleum contaminated soil was "landfarmed" in accordance with IDNR regulations. Activities at the site in 2013 will include the installation of replacement monitoring wells and groundwater monitoring to determine if regulatory limits have been achieved.



Excavation activities



Backfilling after excavation

RESPIRATORY PROTECTION & OSHA

Did you know that respiratory protection (29 CFR1910.134) violations were one of the top 5 citations issued by the Occupational Safety and Health Administration (OSHA) to employers in 2012? Air monitoring and respiratory protection go hand in hand. All employers must be able to defend their decision to require employees to utilize respiratory protection or not. In order to determine whether employees are being exposed to concentrations above OSHA permissible exposure limits (PELs), air monitoring must be done. If OSHA visits a facility, they will likely ask for air monitoring records. GeoTek is prepared to help you with your air monitoring needs.

GeoTek employs the only consulting Certified Industrial Hygienist in the state of South Dakota, Jason Cook, CIH. Jason is an expert in indoor air quality and air monitoring. GeoTek has access to air monitoring

equipment that can be utilized for virtually any project or concern. We can detect particulates ranging from 0.02-25 micrometers in size, measure the concentration of particulates, and quantify basic indoor air quality parameters (e.g. carbon monoxide, temperature, volatile organic compounds, and other contaminants). We can also perform area and personal sampling and design air monitoring sampling plans to fit a client's needs.

Did you know that a human can inhale particulates from 0.01-100 micrometers? The nose can filter particulates that are 5 micrometers and larger, but smaller particulates can pass through the nose and potentially settle deep in the lungs. Breathing hazardous particulates can cause allergic respiratory symptoms, irritation, and even cancer (depending on the chemical makeup of the contaminant). We will be able

to tell you what size particulates your employees are breathing and likely determine where they are coming from.

Air monitoring does not always have to be scheduled in response to complaints or performed at facilities that have hazardous processes. Being proactive can help with employee morale and avoid substantial OSHA fines. We have completed periodic air monitoring for large office facilities to ensure that their air exchange systems are adequate for the building occupants and equipment, and are working properly.

Don't assume that your air quality is fine because you haven't had any problems. Back up your claims with a defensible report or lab analysis to prove to your employees that they are breathing clean air. We'd love to hear from you. Call 605-335-5512 or email Jason at jcook@geotekeng.com for your air monitoring needs or inquiries.

BROWNFIELDS PROJECT

Continued from page 2

concluded that soil with petroleum concentrations may remain on-site from a former heating oil underground storage tank (UST); however, some items in the building required removal and proper disposal because of Polychlorinated Biphenyls or mercury concentrations. The asbestos survey identified friable asbestos materials in the building, including an area of spray-on ceilings, much pipe insulation, and vermiculite insulation. Lead concentrations in surface soil did not exceed residential or commercial use screening levels.

Soil borings and groundwater monitoring wells were conducted as part of the assessment, and low level petroleum concentrations were detected in one soil boring and in groundwater from four test wells. Site screening levels were not exceeded, potential soil and groundwater receptor pathways were considered incomplete, and potential receptor risks were not indicated. With this data, the Brownfields assessment was considered complete.

Required asbestos materials were removed from the building in September 2012 by an asbestos abatement contractor working directly for the City of Aberdeen. In December 2012, the building was demolished.





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Sioux Falls, SD 57104

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GeoTek 25 Year Anniversary



*Gary Scholz and Ralph Lindner
celebrating five years.*



*First display at South Dakota Architect's
Convention in 1988.*

GEOTECHNICAL STAFF CHANGES

Jeff Christensen, PE, left GeoTek in August 2012, after over 22 years of exemplary service. Jeff's new job is a design engineer with Ground Improvement Engineering in Sioux Falls, including designing Rammed Aggregate Pier (RAP) Systems using Geopier Technology. We wish Jeff the best in his new position.

Jared Haskins, PE, was promoted to fill the position previously held by Jeff Christensen. Jared leads the geotechnical engineering services team including the supervision and scheduling of engineers, technicians and drill crews. His duties include project management, engineering analysis and report preparation. Jared began working for GeoTek in 2003 and has 10 years of experience in geotechnical engineering and construction

materials testing.

Matt Thompson, PE, was recently promoted to a project manager for geotechnical and construction materials testing. His duties include project management, engineering analysis and report preparation. Matt joined GeoTek in 2010 as a staff engineer after spending 5 years with Braun InterTec of St. Paul, Minnesota. He has over 9 years experience in geotechnical engineering and construction materials testing.

Brennen Ahlers, EIT, is a staff engineer in our geotechnical engineering and construction materials services area and has been re-focused to geotechnical projects. His duties include project management, on-site observations and testing of earthwork operations and foundation installation along with report preparation.

Brennen began working for GeoTek in 2007 and has over 5 years of experience in geotechnical engineering and construction materials testing.

Shawn Maassen, EIT, was recently hired as an entry level staff engineer in our geotechnical engineering and construction materials services area. His duties include on-site and laboratory testing of soil, aggregates and concrete. Shawn is a native of Canton, South Dakota and is a recent graduate of SDSU with a master's degree in Civil Engineering.

The above engineering staff are supported by the company owner and president, **Ralph Lindner, PE**, with over 38 years of experience and general manager **Dan Hanson, PE**, with over 28 years of experience.