A Publication of Lakehead Constructors Inc.

SPRING 2014

Look to Lakehead

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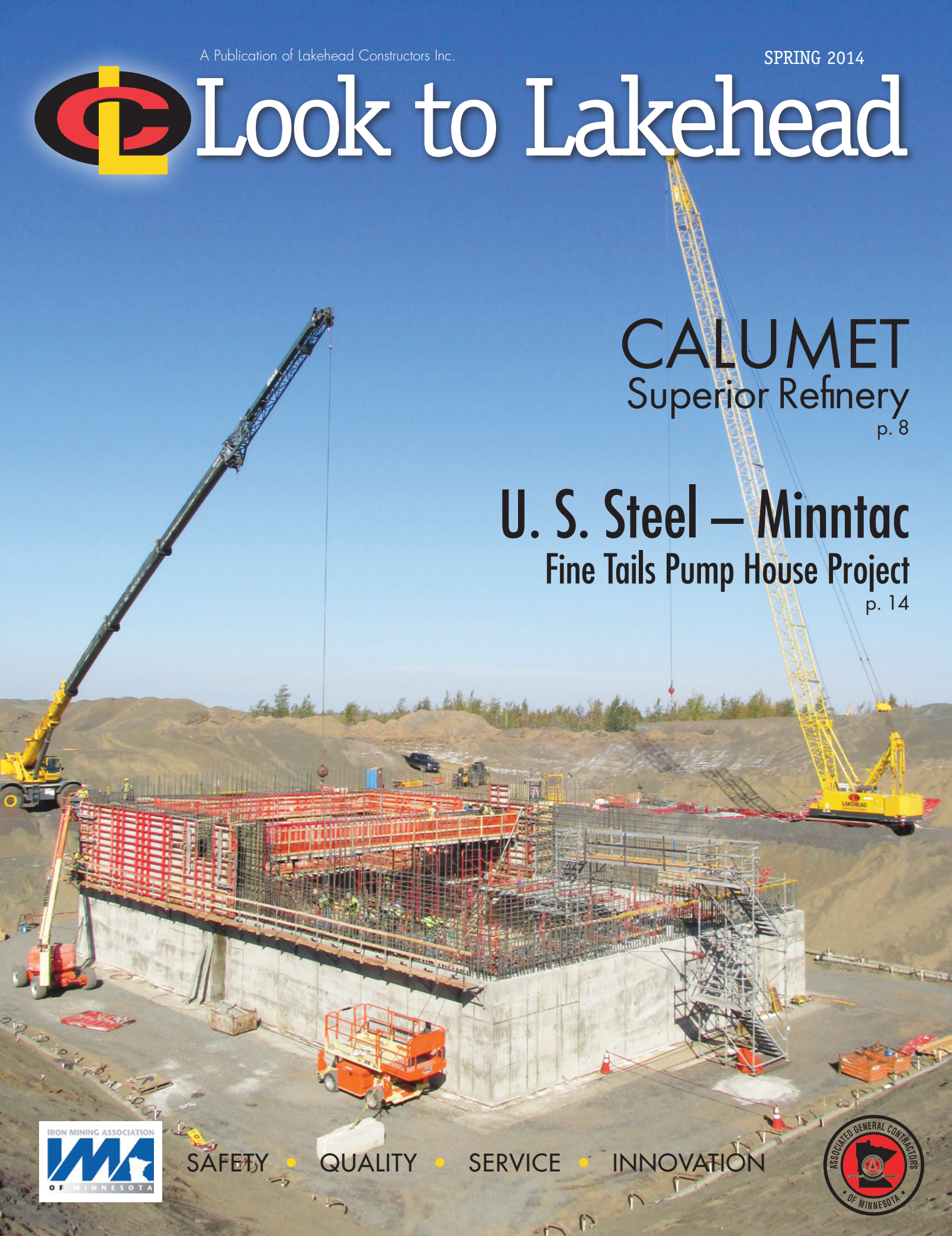

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Greetings, All,

I would like to welcome you all to our third issue of *Look to Lakehead* and hope you find the articles interesting and informative. I would like to again extend a big thank-you to our valuable trade partners, suppliers and subcontractors for their contributions. Without them, this publication would not be possible.

For nearly a century, Lakehead Constructors Inc. has been providing construction services to the upper Midwest. We constantly lead the way in safety, quality, innovation and service to our customers by continually investing in people, equipment and technology. By repeatedly investing in people and programs — such as the Zero Injury safety program and the ISO 9001 quality program — we enhance the overall worthiness of our projects, making Lakehead a clear choice for our quality- and value-minded customers. In this very competitive business, the dedication of our quality employees and highly skilled tradespeople is necessary to achieve our goal of becoming the contractor of choice for our customers. Our good relations with owners and labor allow us to form alliances on significant projects to benefit all parties.

In this issue, you will find several interesting and informative articles on some of our recent projects. They include projects at the BNSF loading facility here in Superior, a pump house project at one of the taconite mines on the Iron Range and our work at the port for Lake Superior Warehouse — just to name a few.

In addition, LCI made another major step forward in March 2013 when we were recognized as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). The erector certification was a significant achievement for the company and, coupled with our ISO 9001:2008 quality program being unconditionally recertified in August 2013, gives more reason why we are the contractor of choice for our customers. I hope you find the article on our ACSE status enlightening.

In closing, I would like again to thank our employees, suppliers, subcontractors, unions and associates who make Lakehead Constructors the great company it is.

Best regards,

Brian Maki
President and CEO

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Mission Statement

The mission of Lakehead Constructors is to provide innovative, reliable and high-quality services to clients throughout the upper Midwest. We treat our clients honestly and provide services that represent an excellent value. We fulfill our mission by developing highly trained and loyal employees who work as a team to anticipate, identify and respond to clients' needs.

Vision Statement

Lakehead Constructors' vision is to be the contractor of choice for our clients. Our exceptional employees allow us to partner with clients to continually identify ways to improve existing services and to build on Lakehead's experience and quality innovation to adapt our expertise.

Markets We Serve

Institutional and Commercial Construction Services
Oil and Petrochemical
Power Generation
Mining and Steel Industries
Pulp and Paper

Services We Provide

Preconstruction Services
Design-Build
Turn-Key Construction Services
Equipment Rental
Emergency Repairs
Secondary Containment Liners
Concrete Construction
Specialized Grouting
Pre-Engineered Metal Buildings
Boiler Repair
Equipment Alignment
Construction Management
Plant Maintenance
Plant Shutdowns and Outages
Crane Service
Equipment Maintenance
Site Work and Preparation
Concrete Restoration
Steel Erection
Specialized Coatings
Kiln Construction and Servicing
Bridge and Tunnel Construction
General Construction
Mechanical Services
Environmental Services
Heavy Rigging
Pile Driving
Shoring and Underpinning
Refractory Services
Millwright Services
Industrial Piping
Precipitator Erection

Core Values
In support of LCI's objective of being the most admired contractor, we are building on a framework of strong corporate values.

Safe Production
- Record production with lack of injuries
- Good housekeeping and orderly work areas
- Well-maintained equipment, proper training and procedures
- Looking out for and correcting each other
- Safe conditions, safe behavior

Customer Focus
- Listening to the customer
- Being responsive and on time
- Meeting quality expectations
- Help the customer succeed

Creating Economic Value
- Doing the right things right the first time
- Elimination of waste and inefficiency
- Breakthroughs in productivity and technology

Bias for Action
- Getting things done
- Reduced red tape
- Barrierless
  - Call anybody you want
  - Management by fact
  - Plan the work – work the plan

Trust, Respect and Open Communication
- Open access to information
- Constructive conflict
- Delegation to the appropriate level
- Toleration of failure in pursuit of business success
- Encouraging the acceptance of different opinions
- Feeling an obligation to explain your actions to those they affect
- Gender and racial diversity

Group/Individual Accountability
- Behaving in line with our core values
- Being responsible for our actions
- Providing plans/standards/expectations
- Holding yourself and/or the group to a high standard of performance
- Walk the talk

Integrity
- Doing what you say you're going to do
- No hidden agendas
- Doing the right thing
- Being truthful
- Zero tolerance – not walking away from a situation
- Be credible

Teamwork
- Actively involve others in decision-making
- Know when to take a leadership role and when to be an active member
- Recognize the value of teamwork and the synergy it creates

Recognize and Reward Achievement
- Celebrating successes
- Stress training and development
- An effective appraisal of performance
- Giving a simple thank-you

Environmental Stewardship
- Going beyond compliance
- Being socially responsible
- Anticipating and addressing potential impacts before they occur
- Personal accountability
- Operating to conserve the environment for future generations

These core values are important to our future.

Everyone will be judged on his or her support of and commitment to them.

VOLUME 3 • ISSUE 1

On the Cover:
U. S. Steel – Minntac Fine Tails Pump House project

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Quality Corner Update

Lakehead Recognized by AISC as an Advanced Certified Steel Erector

by Shawn Rojeski, Manager, Corporate Quality

It's been a busy 24 months since the last edition of *Look to Lakehead*, and, in that time, we completed yet another milestone in the company's history.

In March 2013, we were recognized by the American Institute of Steel Construction (AISC) as an Advanced Certified Steel Erector. AISC currently recognizes contractors as either a Certified Steel Erector or an Advanced Certified Steel Erector. Our experience and successful history on steel erection projects were the key in LCI choosing to pursue the advanced steel erector designation. This recognition makes LCI one of only a few contractors in the upper Midwest to hold this status. Project experience can include many different types of complex steel structures, including large public and institutional buildings, heavy manufacturing plants, bunkers, bins, powerhouses, major industrial facilities, high-rise structures, arenas and repairs/rehabilitation/retrofitting of existing steel structures.

Although many of the program requirements were already being met because of our ISO 9001 certification, there were many challenges and new requirements to meet. A few key components of the Advanced Certified Steel Erector program include: a project-specific erection plan, ensuring our welders are qualified and certified, making sure written welding procedures are available and on-site for their use, making written bolting procedures available, completing a bolting and welding sequencing plan, ensuring our crane operators are CCO-certified, making sure written procedures for nonconforming products are understood and available, ensuring there is an effective procedure for the review of project drawings and specifications, and ensuring there is a procedure for document control — just to name a few.

In addition to the above requirements, a significant commitment was made when Lakehead added a full-time certified welding inspector (CWI) to our in-house staff. CWIs perform visual inspections on welded products and structures in progress and on completed jobs. These visual inspections are required as part of the certification process. The inspector's primary concern is to identify defects that potentially weaken the strength of the joint. Inspectors measure welded products to ensure that they meet specifications for dimension and check to see that a weldment is not over- or under-welded. Inspectors also check weld machine setup parameters, overall joint fit-up and the welding techniques of welders performing work in progress to ensure the quality of the work and to prevent mistakes before they happen. These various inspections are all an effort to document which procedures, specifications and codes are being complied with and making sure structures are erected to their engineered designs. CWIs also develop and test procedures that will be used in the field along with administering weld tests to certify the personnel who will be doing the welding on the job site.

Having a full-time CWI on staff allows the company to more easily be compliant with the requirements set forth by the AISC and to maintain the Advanced Certified Steel Erector certification. This flexibility gives the company the ability to create, test, review and determine welding procedures and welder certifications. This means third-party costs can be minimized and both project and company needs can be met quickly. Additionally, it keeps the company on the leading edge of inspection trends and welding technology processes and improvements.

Improvements in the development of welding procedure specifications (WPSs), creation of procedure qualification records (PQRs) and maintenance of welder qualification test records (WQTRs) are now more readily feasible for Lakehead Constructors. The company recently purchased C-spec computer software, which gives us the ability to track welder continuity logs and reference various welding codes during WPS, PQR and WQTR creation in real time, including ASME and AWS specifically, but the software is flexible enough to allow custom-tailored documentation for projects that require even more detailed procedures.

Personnel and technological advances have given Lakehead Constructors the ability to bring even more control and quality to projects in which welding is employed and to be on the leading edge from pre-, during- and post-weld perspectives.

Brian Maki, Lakehead's president and chief executive officer, stated that he was personally very pleased with the company's performance and all of Lakehead's employees who worked hard to achieve this notable status. "We are very proud of the quality of service we provide our customers in the region. Achieving Advanced Certified Steel Erector status gives us further proof of our commitment to quality work done right the first time. Lakehead is one of only a few contractors in Minnesota and Wisconsin to achieve this recognition, and, coupled with our ISO 9001 certification, makes Lakehead Constructors a great choice for your construction and maintenance needs."

This new steel erector certification, coupled with staying focused on our core business values, will not only make us better and more efficient but will also help us in reaching our goal to be the contractor of choice.

THE SAFETY BENEFITS OF PARTNERING

by Ryan Nelson, Safety Director

For those working in construction, the challenges of managing significant fluctuations in work volume and the labor body are well known. Keeping the right people employed and the workforce educated on customer and contractor rules, requirements and processes requires diligent attention to details. Indoctrination procedures must be thorough, and supervisors must be adept at instruction and holding employees accountable for performance on the project.

Fortunately, there are some contract arrangements that provide stability and promote a progressive and proactive climate to develop a workforce. These include customer/contractor partnering agreements, which have a number of positive impacts to both organizations, including a benefit to the safety and health of workers.

I was recently given the opportunity to collect ideas on how these relationships benefit safety. Upon evaluation, it becomes clear that managing safety in construction can be significantly improved with the stability of partnering agreements. I have outlined the benefits in the following broad categories.

Shared Safety Values — Organizations spend a great deal of time trying to develop cultures that promote and enhance the safety and health of their workers. The commitment to this effort involves communication on many levels. Partnering fosters a consistent, collective and unified message communicated to both customer and contractor employees. The customer and the contractor can align themselves, and the resulting environment is one that supports continuous improvement of safety.

Daily Involvement in Safety — A steady workforce can be developed with experience in the environment. This includes technical knowledge, the ability to identify hazards and the ability to coordinate the execution of corrective action. Implementation of solutions and proactive actions can become the working norm. Given the many unique operations and procedures, there is also an opportunity to develop detailed site-specific safety procedures and policies that can be applied consistently across projects.

Progressive Contractor Involvement and Participation — Partnering allows some sites to develop advanced programs that require significant involvement and assigned responsibilities from both parties. An example would be coordinating, performing and evaluating rescue drills for plant emergencies. The regular workforce is involved and can apply these experiences and knowledge to their roles on the site.

Sharing of Resources — Safety is best executed in an atmosphere of open sharing of best practices and information. Program and policy development can be shared to best articulate the challenges of implementation and practical solutions in the work environment. Unique training opportunities and resources can be shared between parties. Also, auditing safety can be jointly completed through contractor and customer management's collective efforts.

CALUMET SUPERIOR REFINERY

2013 Turnaround Project

by Len Albrecht, Senior Project Manager, and John Lohse, Equipment Manager

The Calumet Superior Refinery, located in Superior, Wisconsin, is one of nine refineries owned by Calumet Specialty Products. Calumet purchased the Superior Refinery, which has been in operation since 1950, from Murphy Oil in November 2011. The crude supply for the Superior Refinery is sourced from the northern United States and Canada. Products produced here are gasoline, distillate, asphalt and specialty petroleum products.

Lakehead Constructors has been involved in general maintenance, along with other capital projects at the Calumet Superior Refinery, for the past 40-plus years. Every five years, the refinery has a major turnaround for maintenance work, and 2013 was one of those years. A major turnaround is when the entire facility shuts down so maintenance can be done on nearly everything in the plant.

This past spring, the Calumet refinery turnaround was scheduled to begin on April 22 and be completed on May 19. The overall outage was managed by a company called Construction and Turnaround Services (C.T.S.). C.T.S. is a company based in Tulsa, Oklahoma, that specializes in managing large refinery turnaround projects. It is responsible for coordinating all contractors involved in the project.

C.T.S. contacted Lakehead months in advance of starting the work at the Calumet refinery to coordinate equipment and manpower needs. Once the needs were established, Lakehead's equipment department began locating and scheduling the needed equipment while our personnel department began filling the manpower needs for the established dates.

When Calumet and C.T.S. plan for a turnaround, they both understand that, when they need a large amount of equipment, they can count on Lakehead Constructors to fulfill their needs. For this particular project, we utilized the following major pieces of equipment: 20-plus cranes up to a 300-ton capacity; forklifts up to a 10,000-pound capacity; 1,600-cubic-feet-per-minute air compressors; light plants; 500-amp diesel welders; and personnel lifts ranging from 20-foot scissor lifts to 135-foot ultra-booms.

Just as important as the ability to locate the needed equipment, LCI was successful in supplying the certified operators to go along with the equipment. In addition to their normal duties, the operators were required to assist the chemical cleaning company by moving the skid-mounted cleaning equipment and did a great job keeping up with the cleaning company's needs.

With many construction projects, there are unexpected circumstances that present challenges, and this project was no different. When the original supply of air hose failed, LCI was requested to procure all 3,000 feet of 2-inch air hose for the project in short order. Thriving on what many would consider a near-emergency requirement, the equipment department successfully met the challenge, and the project progressed forward without delay.

Prework for the turnaround began on March 18, and Lakehead supplied the operators and equipment to help with the scaffold erection throughout the facility. Another part of the prework was to coordinate getting all of the needed manpower scheduled for drug testing and to go through the required site training required by Calumet. Lakehead's workforce consisted of operators, laborers and millwrights, with a total of 100 workers at the peak of the turnaround.

Lakehead's regular base crew that assisted with the day-to-day maintenance at the refinery were used to lead and oversee all of the additional craftspeople who were brought in for the turnaround.

The turnaround this year presented some unusual challenges that hadn't been encountered in the past. The biggest was the weather, so not only did the crews have to deal with completing their specific outage-related jobs, but they also had to deal with two different severe snowstorms. As stated by Dave Stokes, Calumet maintenance supervisor, "The Lakehead operators kept all of the turnaround jobs going and also were able to keep up with the snow removal."

There were several critical lifts on pieces of equipment during the turnaround, and Lakehead was responsible for completing a lift plan for each of these lifts. The lifts included not only very high reaches but also very tight spaces for the cranes to fit in. A few of the notable lifts were replacing the top on the vacuum unit vessels, replacing a section of the FCC unit reactor and replacing the complete combined feed exchanger in the platform unit.

The laborers were assigned to firewatch and holewatch duties. These are very important jobs and actually require additional on-site training. A firewatch is needed whenever hot work is being performed, and a holewatch is needed anytime personnel enter a confined space. But, on top of that, they also did all of the equipment refueling, kept up with the housekeeping and helped with snow removal around the site.

This year's turnaround was a success, even with the snowstorms that Mother Nature threw at it. Stokes said, "We have been using Lakehead equipment and personnel for our turnarounds for many years, and, once again, they came through and did an excellent job for us."

LAKE SUPERIOR WAREHOUSE

2013 Superload Projects

by John Lohse, Equipment Manager

When Siemens needed to bring in 16 transformers that weigh in at 660,000 pounds each, the company knew that the tag-team approach of Lake Superior Warehousing and Lakehead Constructors could get the job done. Shown in the picture above is the *HHL Mississippi* exiting the port heading for another load of transformers. The captain of the *HHL Mississippi* was so impressed with the speed and the safety of the unloading, he made the statement that, if he hurried back, he could get another load of four transformers before the next ship scheduled could get loaded, and he did just that. We unloaded not only the first set of four transformers but also 400 additional pieces of ancillary freight arriving with the transformers July 16 to 17. The second set was unloaded September 3 to 4. The next scheduled ship was the *HHL Amur* for the week of October 14, and the last ship of the season was scheduled during the week of November 11.

This precision-engineered lift, shown at the bottom of page 11, along with many others like it, takes the expertise of Lakehead Constructors' finest certified crane operators to get the job done safely and efficiently.

Note:

- A total of 16 300-metric-ton transformers were produced by Siemens in Nuremburg, Germany.
- Four vessel loads were shipped to the United States.
- More than 400 additional pieces of ancillary freight were arriving with the transformers.
- Units utilized the Port of Duluth's foreign-trade zone.

The units are for a new 500-kilometer transmission line between north of Edmonton and south of Calgary. The project will feature converters to convert power from AC to DC at end points.

Unloading is only half of the project, as the other half is loading the transformers onto special railcars and welding them down for shipment. The units will ship out on 16-axle railcars via CP Rail to multiple destinations in Alberta. All units will run in special dedicated train service direct from Duluth to Alberta.

This takes the talent of certified welders using Lakehead Constructors' expert ironworkers. Lakehead Constructors' ironworkers on this project all held welding certification papers, and they followed our ASME welding procedures. After successful welding was done by LCI ironworkers, we inspected our work before a third-party testing company was brought in complete a final nondestructive weld inspection. As indicated in the picture below, this lift took two Manitowoc 2250 crawler cranes to hoist, crawl and set onto the special 16-axle railcars.

Other large superload projects for 2013 at the Duluth Port included:

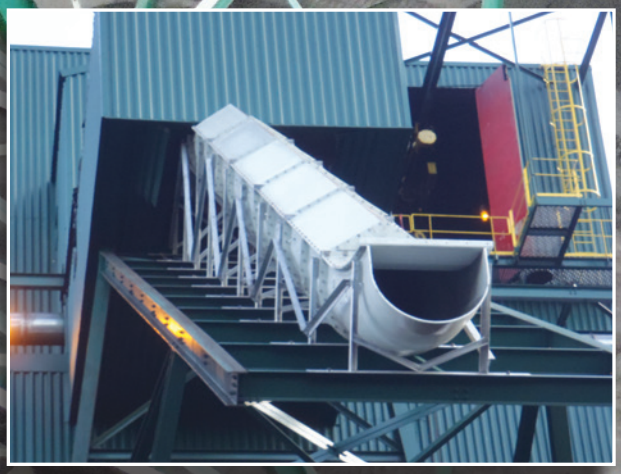
- Multiple pieces of oil and gas refining equipment have arrived for a new refinery being built near Edmonton, Alberta. These pieces are also utilizing the foreign-trade zone at the port. The heaviest pieces weigh more than 1 million pounds and are shipped out via rail. They were loaded onto railcars and then shipped to the oil tar sand project in Alberta in late December.
- A complete set of components for a Liebherr 1750 crawler crane. The components arrived by vessel from Antwerp and will go to a job site in South Dakota. We unloaded these from ship to truck using the Port of Duluth gantry cranes completing tandem lifts.

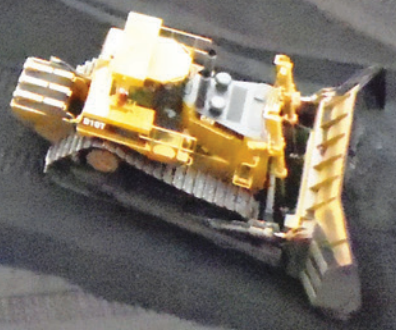

LIEBHERR LR 1750-1

Benetech, Inc. and Plant Professionals

Form Partnership with Lakehead Constructors Inc. to Reduce Dusting and Spillage at Midwestern Power Plants

by Josh Rohig and Jeff Burgess





PROJECT BACKGROUND

Plant Professionals (P^2), a division of Benetech, Inc., was contracted by three Midwestern power plants to perform assessments related to the Occupational Safety and Health Administration's (OSHA) National Emphasis Program (NEP) related to combustible dust (OSHA CPL 03-00-008). The primary purpose of those assessments was to ensure that each facility reduced the risk of accumulations of combustible dust and spillage, to ensure the safety and health of its employees and to reduce potential property damage. Each facility was assessed in late December 2009 with an emphasis on safety, health, fire protection, operations, maintenance, dust collection and overall conveyor components. Through the process, P2 identified key areas for improvement with an emphasis on best available technologies to reduce dusting and spillage. The major issues identified in the assessment were old and outdated equipment and the extreme weather fluctuations that required complete enclosures for the conveying systems. A written report was developed identifying all items that would lead to a reduction in exposure to combustible dust and spillage. Along with the written report, capital improvement budgetary costs and a prioritized matrix enabled the management teams a clear and concise road to OSHA compliance.

BENETECH, INC. AND LAKEHEAD CONSTRUCTORS JOIN FORCES

Upon completion of the assessments, the management teams at each of the three coal-fired power plants requested further assistance through Benetech, Inc. to provide expertise and to take the lead as the "dust betterment" consultant. During the consulting process, Benetech chose the seasoned and experienced team of Lakehead Constructors Inc. to collaborate in the execution of the dust betterment plan outlined by each of the plants. Benetech worked to ensure that each of the best available technologies was appropriate and supplied engineering, procurement and oversight on all projects. Lakehead was responsible for the execution of work from planning to complete installation. The key projects included:

- A new stack-out conveyor was installed. This enabled the plant to decrease stack-out time, eliminate train stoppages and improve overall dusting from the previous stack-out configuration (above).
- A new innovative truck dump conveying system was installed to enable the plant to provide coal economically to a local coal user and reduce dusting from the previous loading operation (page 13, top).
- A coal yard dust-suppression system was installed to reduce dusting from the coal piles to surrounding areas (page 13, bottom left).
- A new engineered tripper chute was installed to reduce dusting and spill-

age that was occurring previously (bottom right).

Through the collaborative efforts of Benetech and Lakehead, we were able to ensure that each project was on time and under budget with no back charges due to excellent preconstruction planning. The projects were completed during non-outage times, which, in turn, enabled the plants to continue all operations without unplanned outages.

BENETECH, INC. CORPORATE PROFILE

Established in 1983, Benetech is a pioneer in combustible dust control and bulk material handling. Initially focused primarily on dust suppression, Benetech quickly became respected as the premier provider in the United States. As client relationships grew, Benetech's expertise was called upon to handle a variety of bulk material handling issues. This natural progression led to a company initiative to provide a complete line of products and services. Through two acquisitions and the building of "best-in-class" divisions for dust collection, advanced transfer systems, washdown systems and suppression, Benetech has become the only EPC with in-house engineering, equipment, manufacturing, research, chemical productions and field service capabilities.

Today, Benetech is respected as a global leader in comprehensive, performance-based compliance programs that ensure safe bulk material handling. Designed to address the laws and guidelines being enforced by OSHA, EPA, MSHA and other governing bodies, Benetech's programs are built to help our clients meet all regulatory requirements while enhancing operations with their complete range of technologies and services. Benetech's programs address a wide range of issues in the bulk material handling systems at mines, coal-fired electric-generating plants, refineries, steel mills, cement plants, coal transloading facilities, and aggregate and stone operations.

PLANT PROFESSIONALS PROFILE

Benetech's Plant Professionals division consists of experienced professionals who have established themselves as industry leaders in power plant operations and safety programs. Coming from more than 20 different utilities, the team of "been there, done that" individuals can offer independent, third-party assessments and professional services as tools for plant management to operate safely, reduce risk and maintain an increased level of efficiency. With more than 880 years of combined experience, Plant Professionals offers unmatched operating experience and achievement from which to draw.

U. S. STEEL – MINNTAC
Fine Tails Pump House Project

by Curt Wercinski, Senior Construction Manager

Minntac began operations in the 1960s and was later expanded in the 1970s. At that time, a tailings basin was constructed to serve as a disposal area for the tailings generated during the processing of taconite and to store surface water for the use at the facilities. Generating more than 15 million tons of pellets annually uses approximately 32,000 gallons per minute (gpm) of water for slurry and other plant processes. Most of the water is recycled from the tailings basin.

The tailings basin is a large surface water and tailings impoundment located to the north of the processing facility. The general purpose of this basin is to dispose of the fine tailings resulting from the ore processing, allowing fine particles to settle out and to store water for the facilities. The basin currently has a perimeter of roughly 14 miles and occupies a total area of approximately 8,000 acres, with an open-water area of about 2,000 acres.

Since 1967, all the fine tailings generated have been gravity-fed through a series of launders to the designated basin area approved by the Environmental Protection Agency (EPA). The current basin area will soon meet capacity and will no longer be able to be fed via a gravity system. U. S. Steel's options were to expand the basin area to the east and west or go upward via a series of earthen dikes. Due to strict regulatory guidelines, it would have taken years to expand the footprint of the basin, so the decision was made to raise the basin upward. To achieve this, the fine tail slurry would need to be pumped to the existing basin, as opposed to being gravity-fed. The solution was to construct a pump house, which will allow Minntac to operate the tails basin for years to come.

Beginning in 2009, U. S. Steel formed an alliance agreement with Hatch to deliver EPCM services at several of the company's facilities in North America. Hatch, a worldwide engineering firm, became responsible for all U. S. Steel capital projects with a total installed cost of between $100,000 and $100 million, in addition to several larger, strategic projects. In 2011, Hatch's involvement in the company's major projects and plant engineering functions doubled and has since expanded to include all of U. S. Steel's North American operations. The Fine Tails Pump House project is included as part of these strategic alliance projects.

In early June, Lakehead Constructors was awarded the first of several bid packages for the Fine Tails Pump House project. This first portion of the project included the civil work — clearing and

grubbing, dewatering, excavation and backfill, concrete forming and placing. The pumping station foundation is approximately 85 feet long and 55 feet wide with the main sump at 40 feet deep. Additionally, there will be a truck bay and an electrical room on either side of the main pump building.

Due to the fast-track nature of this project, LCI was presented with a number of challenges from the beginning. The milestones for the project were extremely aggressive, leaving very little room for unforeseen problems or delays. As with many projects, the majority of the construction documents and structural plans were still awaiting final approval even as LCI began mobilizing. Submittals and work procedures were immediately turned around to the Hatch team for approval. This could not have been achieved without the help and cooperation from our subcontractors and vendors.

Another unique challenge of this project was the depth of the excavation and the proximity of the water table. In order to accomplish this task, LCI subcontracted Hoover Construction to perform the site work and excavation. At nearly 50 feet deep and with a volume of approximately 90,000 cubic yards, the work was completed in just over a week. Upon completion of the first phase of the excavation, the dewatering system would be installed to lower the water table almost 17 feet. This was also completed successfully and ahead of schedule. This allowed LCI to begin work on forming a complicated system of launders and the deep-sump. In all, the foundations were constructed using just under 300 tons of reinforcing and 4,500 cubic yards of concrete, making this one of the largest concrete projects at Minntac in recent years. The pre-engineered building phase of this project, which is scheduled to begin immediately following the completion of the foundation package, was awarded to LCI in early September. The Fine Tails Pump House project is scheduled to be complete in 2014.

The quality and safety requirements demanded by the Hatch/U. S. Steel Alliance and the associated documentation for this project far exceed the requirements many of our subcontractors and vendors have typically seen on projects of this nature. Initially, there was a substantial learning curve for many of them. The quality control of all the construction activities, as well as document control of engineering construction documents, both electronic and paper, are administered though Lakehead's ISO 9001 program. Many of the requirements of the alliance agreement aligned seamlessly with the Lakehead ISO program.

The Hatch/U. S. Steel Alliance also mandates that each project will require a site-specific Safety Management Plan. This is a document that addresses work site safety hazards and control measures to minimize potential risks. This program falls directly in line with Lakehead Constructors commitment to Zero Injury. Effective safety planning involves reviewing areas of concern that are common to every project and assessing hazards specific to this project. A Job Hazard Analysis is completed by LCI and our subcontractors prior to performing every work operation, even the most mundane task. This program has been very positive and has resulted in a zero-incident/-injury work site. The team members on the Fine Tails project recently received an "Excellent" grade as part of an on-site alliance safety audit. This is a tremendous achievement for the project and is a direct result of the commitment to this Zero Injury program.

BNSF Railway

Environmental Improvement Project

by Gary Valine, Senior Project Manager

Lakehead Constructors recently completed a 12-month environmental improvement construction project at BNSF's Allouez Taconite Facility in Superior, Wisconsin.

BNSF is a railway transportation company with more than 41,000 employees, and it transports nearly every industrial and consumer product found on the market. Transported items include food, building supplies, clothing, cars, trucks and energy resources, to name a few.

This particular BNSF facility unloads trains hauling iron ore pellets from Minnesota's Iron Range and transfers the material via a series of conveyor belts to the company's storage silos at Dock 5 so they are ready to be loaded onto ships headed to steel mills on the lower Great Lakes.

The project consisted of numerous improvements to the facility and included a wide variety of construction. Some of the main project items were pouring new concrete slabs; erecting new buildings; installing an underground water line, decant water piping and new pump house piping; and enclosing conveyor counterweights with metal sheeting.

Each construction project has its own unique challenges, and this project was no different. This specific facility unloads trains in one location and, by the system of conveyors mentioned above, transports the material to the final storage area — which is located more than a mile away … not to mention passing over a major highway along the route. The construction crews worked at several different locations each day, and, considering they were sometimes located up to a mile away from each other, careful planning was required each day to take into consideration travel times for everyone on the crew and regularly having to cross a very busy highway.

A large part of this construction project consisted of doing the same work tasks multiple times, just repeated at different locations of the facility. For example, LCI installed approximately 55,000 square feet of new concrete slabs and push walls but at seven different locations of the project. Two new pre-engineered steel buildings were installed for dust containment, with in-slab heating systems to melt snow and ice during cold-weather operations, and three counterweight enclosures were constructed to contain dust.

Other notable construction completed on this project included: a new 2,000-linear-foot directional-bored water line, which ran under U.S. Highway 2; a new Grizzly RuMble grate system to remove dust and dirt from vehicles on-site; and approximately 1,400 linear feet of concrete curbs at the water's edge to keep runoff contained on the site and out of Lake Superior.

The water-line portion of the project was significant due to 100-year-old train trestle foundations and numerous utilities directly in the route of the new boring that had to be planned for and safely maneuvered around. As for the RuMble grates, they are a very aggressive vibratory-type method of removing dust and debris from vehicles by driving over spaced steel plates that will shake the dust and debris off the vehicle, and all yard traffic is required to pass through them.

The taconite loading facility was in operation for nearly all of the construction period, except for the winter shutdown. This shutdown normally occurs from approximately mid-January to mid-March, when the Great Lakes' shipping season shuts down due to ice on the lakes and the boats not being loaded.

LCI's supervisors on the job site have worked very hard to keep the crews working productively and on project schedule, all while successfully meeting the company's Zero Injury safety and ISO 9001 quality program requirements.

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