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Klohn Crippen Berger
sustainability report



sustainability

A young plant with two green leaves growing out of a bed of moss, symbolizing sustainability. The background is a soft, out-of-focus green.

Sustainability is the long-term maintenance of responsibility, which has environmental, economic, and social dimensions, and encompasses the concept of stewardship, the responsible management of resource use.

[UNITED NATIONS]

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from the president

Klohn Crippen Berger has been providing clients with sustainable solutions for over 60 years. Our company was shaped by one simple ideal: "Do Things Right", which means producing quality work, meeting the needs of our clients, treating our employees well and giving back to the community. This guiding principle has served us well, but as we expand our operations, it becomes necessary to formalize our approach to ensure that all employees work towards a common vision and effectively communicate that vision to our stakeholders.

We took our first step in 2006 with the introduction of our Company Charter. The Charter includes our Mission, Vision and Values and defines how we strive to build a better world through excellence, innovation and teamwork. In 2007, we introduced the Harvard Balanced Scorecards; a framework used for business planning which focuses on setting balanced objectives centered around people, clients and business.

At KCB, we believe that to be successful you need to maintain a balance of priorities and what we call "Doing Things Right" is the same as "Sustainability".

KCB formed a Global Sustainability Committee which met for the first time in July, 2012. Since then we have implemented several initiatives and laid the foundation for a dynamic and inclusive sustainability program. These initiatives tie back to our Company Charter and align with our Mission, Vision and Values. I don't consider the Sustainability Initiative as a new way of doing business for KCB, but an evolution of our best business practices which allows us to continue to meet the needs of our stakeholders, focus our efforts as a growing company, and continue to "Do Things Right".

We have experienced steady growth in the last year across all Business Units and offices serving our primary markets in mining, oil sands, and government infrastructure. As a result, we expanded our offices in Vancouver, Calgary and Brisbane in the last year and moved to larger locations in Edmonton and Sudbury. To take advantage of new market opportunities we also opened offices in Toronto, the UK and Brazil. Our socio-environmental group is continuing to grow and integrate with our engineering and technical teams to build successful, sustainable projects that serve the needs of our clients, the community and the environment.

Our efforts were recognized by our peers as we re-qualified as one of Canada's Best Companies, climbed to 14th on the Zweig White Hot Firm List (the highest ranking by a Canadian company), achieved the PSMJ Circle of Excellence ranking again, and won the Professional Services Category in the

BC Top 25 Exporters of 2012. We were honoured to receive awards from the Consulting Engineers of Alberta for our work on the Bow River Weir and from the Association of Consulting Engineers of Canada for our approach to tailings management at Greens Creek Mine in Alaska. These awards recognize the hard work and achievements of our entire staff.

We have focused our HR resources this year on recruitment and retention, introducing new training programs, professional development tools and enhancing our benefits package. We also completed a second ASFE Peer Review whose distinguished panel complimented our performance, and recommended several improvements which we will now implement.



Bryan D. Watts

As always, there are uncertainties going forward. Increasingly, governments have to economize because the pressure from debt holders is starting to temper the demands of an entitled electorate. We can expect to see more design-build-operate projects globally in the years ahead as governments do not have the revenue for infrastructure improvements. Large miners have been cancelling or delaying mining projects because development capital costs have become exorbitant. Our oil sands industry is starting to suffer financially because efforts to transport bitumen to the coast - any coast - are being resisted on all fronts. These market uncertainties have been with us since the financial meltdown in 2008 and will continue for many years to come.

In addition to the change in the global economic landscape, industry stakeholders are demanding a higher level of accountability when it comes to environmental stewardship and social responsibility. They expect an open and transparent dialogue regarding company performance outside of the balance sheet.

The sustainability report is one of the tools used to communicate to stakeholders. In developing our inaugural report, we have gathered baseline data and identified opportunities for improvements moving forward. Our objectives for 2013 centre around: raising awareness of sustainable design practices; increasing our level of monitoring and reporting of waste and recycling; continuing to implement information technology initiatives to offer alternatives to travel and developing methods to share best practices across our operations.

We continue to develop our professional services to deliver safe and sustainable projects and aim to be a trusted partner to our clients, helping them to successfully meet the needs of their stakeholders. I encourage you to read our report and provide any feedback on how we can improve our sustainability practices.

THE SUSTAINABILITY INITIATIVE

Klohn Crippen Berger is proud to have launched our Sustainability Initiative in 2012. The initiative is being driven by our Global Sustainability Committee whose objective is to support our vision to build a better world by applying a standard of reporting on our sustainability practices, communicating our successes, and identifying opportunities for change in both our internal operations and our project work.

ABOUT THE REPORT

Klohn Crippen Berger (KCB) is pleased to present our inaugural sustainability report. This report was produced for all KCB stakeholders: clients, employees, rating agencies, suppliers, subcontractors, non-governmental organizations, media and the communities where we operate.

ENGAGING OUR STAKEHOLDERS

To ensure that we are meeting the needs of our stakeholders, our Sustainability Committee has representatives from each business unit and consists of engineers and scientists, three are Associates. Also on the committee are representatives from our Corporate Services group which includes human resources and marketing. These professionals engage with our stakeholders through project work, conferences, client and employee surveys and other activities.

SCOPE

We used the Global Reporting Index (GRI) methodology as a guide for developing this report as it is the most widely accepted format for sustainability reporting.

In preparing our inaugural report we identified our key performance indicators (KPIs) and gathered baseline data to provide a snapshot of where

we are now and to identify opportunities to refine tracking methods for future reports. The data reported comes from available project and corporate information. The reporting period is the last fiscal year, ending December 31, 2012. Where we can, we have added statistics from previous years for reference.

We used the GRI level C compliance matrix to focus our efforts and selected KPIs from each GRI indicator set to reflect the items we believe to be of most value to our stakeholders. You will see references to these KPIs throughout the report (e.g. LA 15) and an index is available on page 27.

In reporting on our in-office environmental practices, we focused on our two largest offices in Vancouver, British Columbia and in Calgary, Alberta. These offices represent approximately 65% of our operations and span across all business units.

As engineering and environmental consultants, our greatest contribution to sustainability is our work. In this report, we have captured qualitative information that represents how we build a better world through our project work.

The Global Reporting Initiative (GRI) is a non-profit organization that promotes economic, environmental and social sustainability. GRI provides all companies and organizations with a comprehensive sustainability reporting framework that is widely used around the world.

from the GRI website

QUESTIONS?

Contact Kathy Fowler, Sustainability Committee Chair
(604) 251-8583 / kfowler@klohn.com

about KCB

Klohn Crippen Berger is an international engineering and environmental consulting firm with its head office in Vancouver, BC and 13 offices in strategic locations across Canada, in Peru, Australia, Brazil and England.



KCB has participated in large and challenging engineering projects worldwide since being formed in 1951. These projects have helped develop resources, reclaim landscapes, build communities and stimulate economies.

We offer a full range of engineering, geoscience and socio-environmental services to clients in a variety of sectors including oil and gas, mining, power and transportation and are currently working in 20 countries.

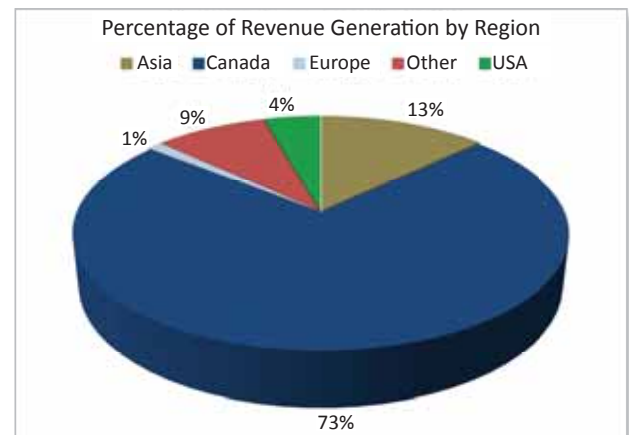
Our business is organized into three business units: Power and Transportation; the Mining Environmental Group and the Alberta Group. The business units are supported by the Corporate Services Group.

KCB provides comprehensive services for environmental and social management of resource and infrastructure projects, with a focus on integrating the social and environment aspects into the design of projects for our clients and the community. We assess potential project effects and optimize opportunities to mitigate the environmental footprint of the project and maximize social benefits.

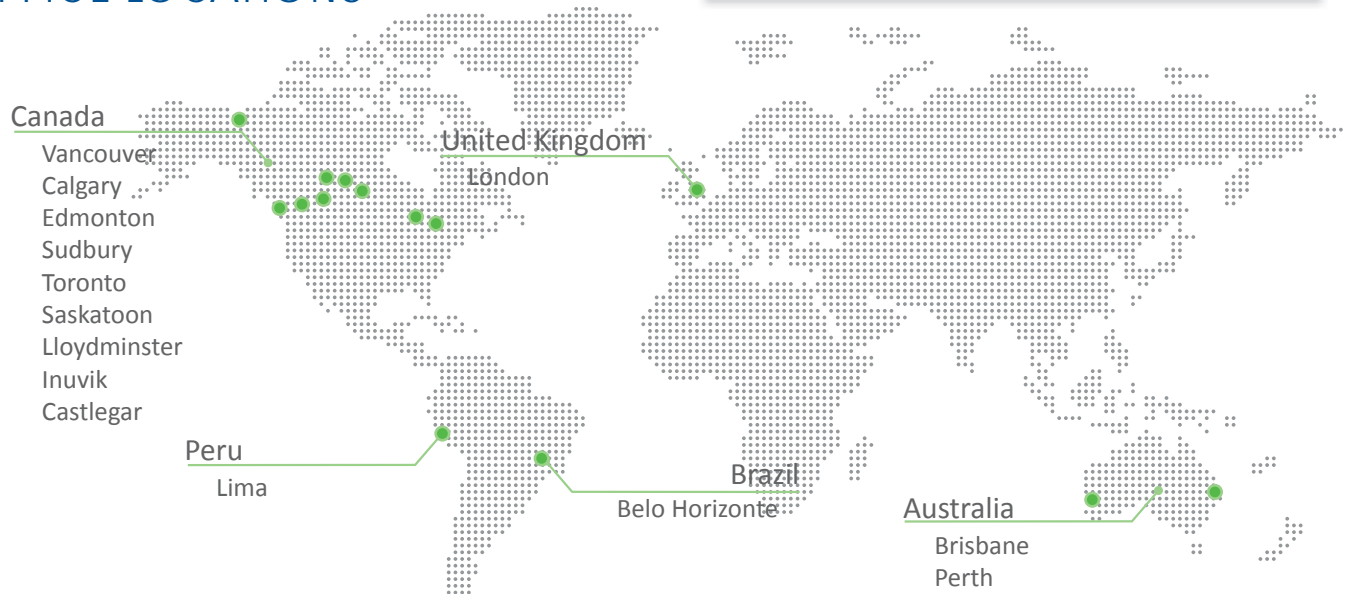
Our environmental teams include specialists in: aquatic and terrestrial biology, hydrology and groundwater, geochemistry, limnology, toxicity, socio-economists, GIS, risk assessment and remediation. We work with local environmental consultants and retain national and international experts to develop teams that work for the client, the community and the environment.

KCB partners with First Nations, Aboriginal, Inuit and Indigenous communities to provide services that enhance local participation in major projects.

Our corporate vision is to build a better world through excellence, teamwork and innovation. Our commitment to excellence is the driving force behind everything we do and as a result we are the recipient of over 50 awards for business leadership and project innovations. Our projects stand the test of time and we continue to work on many sites that we helped develop decades ago.



OFFICE LOCATIONS



CORPORATE GOVERNANCE

KCB is a private engineering and environmental consulting firm with just over 500 staff. Shares in the company are held by the Principals, Associates and a major shareholder, Berger Group Holdings. The shareholders meet annually in May.

PRINCIPALS AND ASSOCIATES

The Principals and Associates are the leaders of the company. Principals are chosen for their exemplary reputation in consulting engineering and their service to the company and Associates for the promise they show in their careers and their leadership potential.

QUALITY, BOARD, AND OPERATING COMMITTEES

The Board of Directors is comprised of two members nominated by employee shareholders and two nominated by Berger Group Holdings.

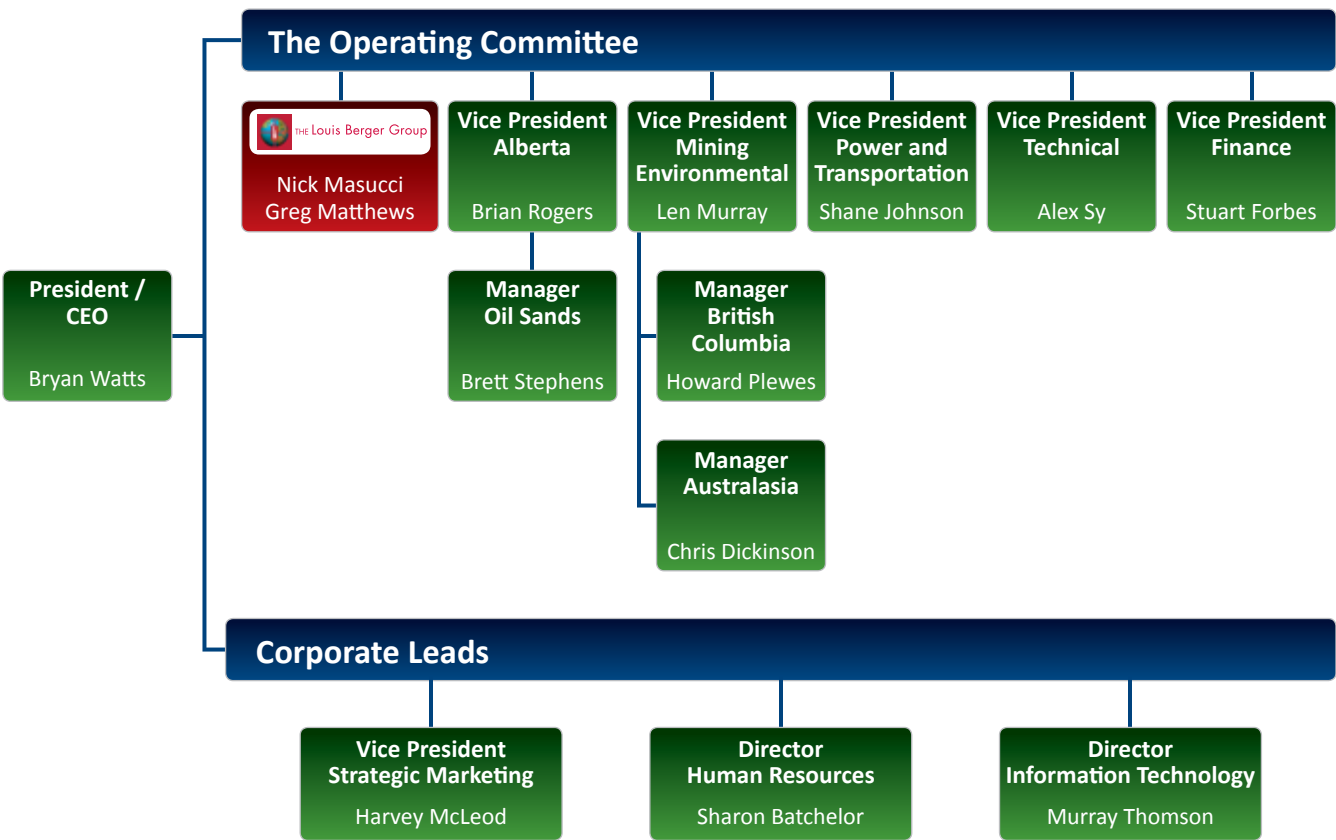
The Board appoints the President who, in turn, appoints the senior executive team. The President chairs the Operating Committee, an advisory group to the President, which meets quarterly to review business unit budgets and performance.

PROJECT MONITORING AND RISK ASSESSMENT

KCB has robust risk management programs that include: a standardized process to assess the company's business and project risks, a company-wide Code of Business Conduct and Ethics program along with embedded ISO certified quality management and project management systems. We also undertake quality, health and safety, financial and peer audits and benchmark ourselves against others in our sector to ensure we are working at a level that exceeds the industry norm.

Our Risk Assessment Committee, comprised of the President and the Technical and Financial Vice Presidents, evaluates proposals that trigger certain review thresholds (e.g., new client, new country of operation, non-standard contract clauses, need for specialized staff, etc) to ensure that strategic directions are honoured and that client needs can be met.

KCB projects are reviewed monthly by the Project and Proposal Monitoring Committee, comprised of the President and Vice Presidents. The Committee reviews the budget and schedule for each project to identify the status of all projects.



about KCB

We conduct our work in accordance with environmental and workplace legislation, client and site requirements and environmental protection measures.

QUALITY MANAGEMENT

KCB has a comprehensive quality management system that meets the requirements of the ISO 9001:2008 and guides our professionals to carry out projects with a consistent level of professional standard.

The program is monitored by a series of internal and external audits with the aim of continually improving what we do. Our QMS system has enabled us to ensure quality and consistency when exporting our services worldwide, offering us a distinct competitive advantage.

LEGAL AND FINANCIAL

When working internationally, external factors such as labour laws, tax laws, local customs, geography, climate, safety and security can determine the financial success of the assignment. Over the past five years, we have undertaken projects in Papua New Guinea, New Caledonia, the Philippines, Israel, Vietnam, Madagascar, Eritrea, Mongolia, Peru, Costa Rica, Ecuador, Panama, Guatemala, Bolivia, Chile, Argentina, Laos, the USA, and many other countries. To operate successfully, we have developed relationships with key service professionals to help us navigate much of the legal and financial terrain.

ASFE Peer Review

For over 20 years we have belonged to ASFE, the premiere organization concerned with the improvement of business practices of consulting geo-professionals. We underwent a voluntary ASFE Peer Review in July and August of 2012, following our previous very successful Peer Review in 2006 and follow-up audit in 2008.

The Peer Review, conducted by a team of four external geo-professionals, focused on eight core management components:

- | | |
|---------------------------------------|------------------------------------|
| 1. Business management | 5. Project management |
| 2. Facilities and technical resources | 6. Financial management |
| 3. Human resources management | 7. Marketing practices |
| 4. Professional development | 8. Electronic resources management |

The scope of the ASFE Peer Review included: a questionnaire completed by 383 staff; a questionnaire completed by 42 clients; and 120 on-site or telephone interviews with staff from our offices in Canada, Australia, Peru and England.

The Peer Review team made several recommendations which are being considered as part of our continual improvement process.

75%
of employees
responded to
the ASFE Peer
Review Survey

AWARDS

We have a reputation for quality technical work, but we also strive to achieve a level of excellence as an employer and in business management. Employer and business awards provide benchmarks to work towards and allow for opportunities to learn from our peers. KCB continues to be recognized for its business practices and technical excellence.

Highlights from 2011/2012 include:

- The 2012 Canadian Consulting Engineers Award of Excellence for our work on the Greens Creek Mine in Admiralty Island, Alaska.
- The 2012 Consulting Engineers of Alberta Award of Excellence for Water Resources & Energy Production and for Community Development for the Bow River Weir Project in Alberta.
- Awarded Gold Level Standing in 2012 as one of Canada's 50 Best Managed Companies. To receive Gold Level Standing a company has to successfully qualify for four years consecutively.
- Named to the PSMJ Circle of Excellence for the fourth year in a row successfully qualifying as a Platinum Member. PSMJ's exclusive Circle of Excellence highlights firms that are successfully managed, based on 13 key performance metrics that demonstrate outstanding achievements in profitability, overhead, cash flow, productivity, business development, staff growth and turnover.
- Named to ZweigWhite's Hot Firm List for the last two years. This list recognizes the fastest growing A/E/P and Environmental Consulting Firms.
- Named British Columbia's Top Exporter in the Professional Services Category.
- Awarded UBC Engineering Co-op Program Employer of the Year.

KCB named UBC Engineering Co-op Employer of the Year



Since 1995, KCB has provided 101 four-month co-op work terms to undergraduate engineering students in a variety of areas including civil, geotechnical, mining and environmental engineering. The majority of students have been based out of the Vancouver office however some have had the opportunity to also work in our Brisbane, Australia location.

"Engineering co-op students have had exceptional technical engineering work terms and many have commented on the positive personal experiences they have had while working in the company", said Jenny Reilly, Director of the Engineering Co-op Program. "Klohn Crippen Berger provides students with engineering experiences where they not only improve upon their technical abilities but also grow within the organization and learn about organizational behaviour, professionalism and the company's corporate culture. Klohn Crippen Berger is a valued and honored employer of the UBC Engineering Co-op Program; we are very grateful for their participation in the program and thankful for the expert guidance and mentoring they provide to students with meaningful work experience."



our commitment



Water quality sampling, Saskatchewan



Klohn Crippen Berger is committed to sustainability in all aspects of our business and professional services.

To support our vision to “Build a Better World”, we balance social, environmental and economic considerations to meet the needs of our clients, the community, our employees and other key stakeholders. To achieve this, we apply and integrate sustainable practices into our key business quadrants:

CLIENTS - We are committed to working with our clients to meet their sustainability objectives. To achieve this we will:

- Foster a culture for our staff, scientists and engineers to conduct their business and to design programs and facilities for our Clients that use leading standards of health, safety and environmental management;
- Work with our clients to deliver solutions that reduce harmful emissions to air, water and land;
- Look for opportunities in project design to improve the efficiency with which we use raw materials, energy and natural resources; and,
- Provide counsel on ways to eliminate, mitigate or remediate the environmental impact of our clients’ facilities.

PEOPLE - We are committed to social responsibility in the workplace and in the communities in which we operate. To achieve this we will:

- Act fairly, honestly and respectfully with our employees and actively support mentoring, training and professional development of our staff;
- Foster a culture of health and safety in all aspects of our professional practice and provide a safe working environment for our employees;
- Respect the rights and interests of the communities in which we operate; and,
- Give back to the communities where we operate through charitable donations, support of educational institutions, committee participation and sponsorships.

BUSINESS - Through collaboration, knowledge sharing and corporate governance we will:

- Conduct our operations and our design practices to meet or exceed regulatory environmental guidelines;
- Maintain our professional competencies by staying current on business practices and technology;
- Ensure compliance with our Health and Safety and Quality Management systems;
- Encourage innovation in technology, engineering and science;
- Develop, adopt and improve our metrics to monitor our progress in sustainable business practices;
- Look for opportunities to reduce energy and waste consumption; and,
- Encourage sustainable business practices and services when dealing with our supply chain.

our commitment



Safety meeting, Papua New Guinea

HEALTH AND SAFETY

We are committed to Health and Safety in all aspects of professional practice. It is our policy to provide a safe working environment for our employees and to encourage an attitude of safety in the workplace.

We take our health and safety initiatives seriously and our company-wide philosophy of zero harm permeates throughout our employee and contractor health and safety practices.

KCB is constantly reviewing the scope of our health and safety components on all jobs in order to continually improve our performance in all aspects of our work. Our program is employee led which we feel is critical to its success. We have seven active health and safety committees in our operations.

At KCB, similar to many consulting companies, our work environment is constantly changing. Our employees work on projects all over the world and are faced with cultural, environmental and project specific challenges every day. Often the work takes place in isolated areas far from the daily comfort and security of our offices. Our employees must overcome the difficulty of identifying and mitigating workplace health and safety issues. The life cycle of our health and safety program encompasses 100% of our employees and their tasks.

Our Health and Safety Program consists of:

- Health and Safety Policy
- Health and Safety Manual
- Safe Work Practices
- Site Specific Health & Safety Plans
- Tailgate Talks
- Health and Safety Documents (Forms and Checklists)
- Safety Information Sheets (Personal Protective Equipment)
- Safe Job Procedures
- Health and Safety Committees (Local and Global)
- Induction and Safety Training Programs
- Presentations “From the Team for the Team” (KlohnSafe)

Training and communication are key to a successful health and safety program. Over 9100 hours in health and safety training were reported from September, 2011 to September, 2012.

- New employees receive health and safety orientation regarding their responsibility to prevent, identify, control and report.
- All health and safety procedures are available on our intranet and health and safety officers are clearly identified to help answer questions.
- Health and safety is woven into KCB culture in the form of presentations, “near misses” communications, on-site tailgate sessions and our weekly KlohnSafe program. This is done to ensure that all employees have the opportunity to learn from past mistakes as well as how to handle previously unforeseen events therefore broadening our health and safety program.
- When an incident is reported there is an investigation procedure to determine the root causes and share lessons learned with staff.

THE GOAL OF OUR HEALTH AND SAFETY PROGRAM IS **ZERO HARM**

KLOHNSAFE

To show our duty of care and ensure that our employees come home safely, we reinforce the belief that safety is a way of work not just an additional task. The most effective way to make health and safety a part of our culture is for every employee to own it, thus KohnSafe was born.

KohnSafe presentations are information sessions designed to share anecdotal and factual information on the topics of health and safety, technical procedures and fieldwork. The sessions are led by staff as "from the team, for the team". Sharing challenges and reviewing best practices with our peers improves performance and allows us to identify opportunities to enrich our program.

These sessions are held regularly across the business. The presentation format differs depending on preferred style of the employee presenting. These range from PowerPoint sessions, sharing photographs, topics researched, videos or simply discussion based. The aim is to keep the sessions fresh and effective.



EXAMPLES OF KLOHNSAFE TOPICS

Avalanche Safety
Working Internationally
Powerline Safety
Fatigue Management
Cycling Safety
Lightning Safety
Test Pitting and Safety



Klohn Crippen Berger

Health & Safety Policy

BUILDING A SAFE AND HEALTHY CULTURE, ONE PROJECT AT A TIME

Klohn Crippen Berger (KCB) is committed to protecting the health and safety of our employees, contractors and visitors through proper planning and execution of our work. Our goal is to continually improve our health and safety performance by preventing harm in our offices and laboratories, and on project sites worldwide. KCB will achieve this goal by:

- Meeting or exceeding legislative, regulatory and client requirements.
- Communicating and enforcing the requirements of our Health & Safety Management System (HSMS) with our employees, contractors and visitors through our managers and supervisors.
- Ensuring all employees, contractors and visitors understand and carry out their health and safety responsibilities, including hazard identification, risk assessment, incident reporting and investigation.
- Continually improving our HSMS in collaboration with employees through training, measurement of our performance, sharing of lessons learned and annual reviews of the effectiveness of our HSMS.

Bryan D. Watts

Bryan D. Watts, P.Eng.
President and CEO
February 2013

our clients



Tailings beach, British Columbia

KCB has worked on some of the most remote and interesting jobs around the world. We have built a culture that encourages innovation and rewards excellence in our professional practice.

Sustainability is inherent in what we do. To be successful, our work must stand the test of time. In fact we continue to work on sites that we helped develop decades ago.

In addition to the quantitative data collected for this report, we will share qualitative information through feature projects where we played a significant role in sustainable practices. To focus our efforts, we developed a set of KCB key performance indicators in addition to the ones chosen from the Global Reporting Initiative. They include:

ENVIRONMENTAL

- Responsible water management
- Special consideration for flora/fauna
- Rehabilitation beyond industry standard

SOCIAL

- Mentoring local people
- Design/service to improve social conditions
- Transfer of technology or skills

INNOVATION

- Advancement in research and technology

DESIGN

- Responsible land use design including relocation, land use reduction, using existing infrastructure
- Designs to reduce, repurpose/reutilize remaining materials
- Design to improve safety conditions

OVER **80%** OF
OUR CLIENTS ARE
REPEAT CLIENTS

Our commitment to excellence is the driving force behind everything we do and, as a result, **we are the recipient of over 50 national and international awards for major projects.**

FEATURE PROJECT

CALGARY

BOW RIVER WEIR

Winner of the CEA Award of Excellence for Water Resource & Energy Production and for Community Development

In 2006, KCB in association with their hydraulic and ice subconsultant, Northwest Hydraulics Consultants, and their recreational hydraulics subconsultant, Recreation Engineering and Planning (REP), were retained by Alberta Transportation to undertake the final design, contracting services, construction contract administration, resident engineering services, and commissioning of the project.

The project's primary purpose was to eliminate the extreme drowning hazard and enable river passage for non-motorized boats and fish while maintaining water diversions from the Bow River.

SAFETY FOR RIVER ENTHUSIASTS AND WILDLIFE

To improve safety and facilitate passage, pools and rapids were constructed downstream of the weir to increase water levels creating whitewater play areas. Hydraulic constrictions (i.e., drop structures) were constructed downstream of the weir creating pool and riffle sequence resulting in higher water levels thereby changing the hydraulics over the weir from a circulating hydraulic to linear. The riffle geometry was designed to provide whitewater play areas for kayaking and river surfing thus making safety improvements at the weir.

Two channels were constructed downstream of the weir. The Low Water Channel (LWC) on river right consists of six concreted boulder drop structures and five constructed pools to provide a bypass channel for novice boaters. The High Water Channel (HWC), located in the centre and left side of the river, consists of five concreted boulder drop structures and three constructed pools that provides whitewater play areas for more experienced boaters. The LWC and HWC are separated by a constructed divide island which provides bird habitat and refuge for boaters.

Fish passage enhancements include notches in the existing weir to facilitate fish passage at low river flows, and lower velocity "fish passage channels" formed into the boulder-concreted surface of drop structures within the LWC and HWC.

A key component of the design was to blend the weir modifications with the natural surroundings of the Bow River. This was accomplished by using natural materials such as boulders, cobble, and gravels where possible rather than the reinforced concrete, structural steel, and/or steel sheet piles commonly used in conventional hydraulic structures designed to last more than 50 years. The concreted boulder structures more closely replicate natural riffles, outcrops, and bed materials that exist within the Bow River. Using boulders with concrete in the voids provided very robust, cost effective

structures with minimal foundation preparation resulting in faster construction and ultimately, less construction impact on the aquatic environment than conventional hydraulic structures. The weir's transformation improves safety, fish passage, and creates an amenity to new users including canoeists, kayakers, bird watchers, educators, floaters, pathway users and picnickers.



Calgary Bow River Weir, Alberta

CHALLENGES AND SOLUTIONS

The Calgary Bow River Weir Project was a challenging and unusual project. Similar whitewater features have been constructed elsewhere in North America (predominantly in the United States) but not on a river of this size or on a river with the varying discharge and harsh ice regime of the Bow River.

Constructing a project that spans the entire width of the river presented interesting challenges. Limiting the impact of 30 months of construction on the aquatic environment was considered extensively in the design, as well as the selection of construction materials, construction methodology, technical specifications, construction activities and scheduling. Collaboration with Alberta Transportation, Parks Foundation Calgary, regulatory agencies, stakeholders and the construction contractor was essential in meeting project objectives and providing a sustainable benefit to the City.

"Outstanding example of the application of collaborative engineering approach to solve a highly complex problem involving public safety, security of irrigation water supply, fish passage, creation added value and seasonal construction challenges within a multiple regulatory and stakeholder environment."

CEA Judge's Comment

our clients GREENS CREEK MINE

Winner of the CCE Award of Excellence for Natural Resources, Mining, Industry and Power

The Hecla Greens Creek Mining Company (HGCMC) polymetallic mine is located on Admiralty Island, about 29 kilometers southeast of Juneau, Alaska. A portion of the mine facilities are within Admiralty Island National Monument.

Admiralty Island has one of the world's largest populations of brown bears and is home to many species of salmon, birds, whales, and deer which makes the island a popular tourist destination. Western Hemlock and Sitka Spruce dominate the area and cool temperatures and high precipitation characterize the temperate coastal rainforest ecosystem.

The Greens Creek mine is one of the largest private employers in Southeast Alaska and is the largest private property tax payer in the City and Borough of Juneau. Mining is a large part of the Alaskan economy and directly employs over 1,500 people and contributes up to \$10 billion in investment. Mining is under intense scrutiny in Alaska due to legitimate concerns over safety and environmental effects. Responsible and rigorously proven tailings disposal is key to maintaining the economic benefit and the social and legal mandate to operate.

The solution was the world's first large dry stack filtered tailings disposal facility (TDF).



Greens Creek Mine, Alaska

INNOVATIVE TAILINGS MANAGEMENT

To develop acceptable solutions to store de-watered tailings in an environmentally and regulatory sensitive site, KCB had to: determine if dry stack tailings could withstand a major earthquake; develop a plan that could be implemented in a harsh and remote climate while meeting strict regulatory requirements; develop solutions for tailings storage that met rigorous federal and state air and water quality standards; and develop solutions that coexist with wildlife and reduce visual impact.

Development of the dry stack tailings method had no precedent in the mining industry but was key to the mine operation. KCB's approach included developing geomembrane-lined cells, upgrading the water management system, and constructing infrastructure to support mine operations.

A NEW APPROACH TO IN SITU TESTING

The all weather placement had to achieve sufficient tailings density such that the storage facility is stable against liquefaction under a major earthquake off the west coast of Alaska. Conventional methods of in situ testing were not conclusive in regard to the seismic performance of the tailings. As such, limited data was available for characterizing these sorts of "transitional" materials for seismic response.

KCB and HGCMC developed a program of high quality in situ sampling and laboratory testing to prove that the tailings would remain stable in a major earthquake.

During the course of this project, major advances were made in the understanding of the seismic behavior of filtered tailings and the design and construction methodology in a cold, wet environment.

The design work, construction observations and innovative testing demonstrated that further expansions could go ahead with confidence.

Not only is the design and construction of the TDF held up as an example of successful tailings management, but the testing information is being further studied by KCB in collaboration with the University

of British Columbia to benefit tailings management practices across the industry.

Operation and expansion of the mine for up to another 50 years is important to the Alaskan economy and the performance of the tailings area to date is a key consideration of regulators in permit application reviews. Technical advances, demonstrated excellence, and environmental stewardship have allowed mine operators to build the confidence with regulators to permit additional expansions.

"The project successfully overcame many challenges to achieve a unique solution to tailings management. Driven by a desire to be environmentally responsible and address issues of seismic stability, the project shows a leadership in this area that makes it worthy of recognition."

CCE Awards - Juror's Comment

HIDDEN VALLEY MINE

The Hidden Valley tailings storage facility (TSF) has set a precedent for the sustainable management of tailings in Papua New Guinea (PNG). Modern mining in PNG arguably began with the development of Bougainville Copper in the late 1960s, and continued through to Ok Tedi, Porgera, Lihir, Misima (and others). These mines have proceeded with deep sea or riverine tailings deposition, rather than construction of a tailings dam to retain the mine waste within an impoundment; as is the practice throughout the majority of the mining industry.

The Hidden Valley mine operators, Morobe Mining Joint Venture (MMJV), commissioned KCB to design and oversee the construction of the TSF in 2008 and subsequently, the operation which continues today. The established construction supervision and monitoring programs allow for continued successes that benefit MMJV and the surrounding environment.

SETTING A PRECEDENT IN PAPUA NEW GUINEA

Building the first on-land tailings containment area helps secure a future for the industry by demonstrating the ability to meet modern standards and thereby attract the international investment needed to finance such large ventures.

Tailings containment means reduced pollution in the river systems which enhance both the environmental and community values as well as quality of life. Mining brings tremendous advances in health, education and opportunities for local and national communities and safe containment of tailings is a vital component to continued improvement.

The Hidden Valley TSF is comprised of two large earth and rock fill dams, raised by the downstream method. At final height the Main Dam will be one of the highest tailings dams in the world. The dams are constructed of pit waste and therefore have the dual function of storing tailings and waste rock.

SOLUTIONS FOR A CHALLENGING ENVIRONMENT

Construction of the starter dams and subsequent raises is complicated by conditions at the site. Water management was, and remains, the dominant issue. High rainfall, seismic activity, weak erosive soils, material availability, dense vegetation and remoteness of the site provide constant challenges to construction and operation. The Observational Approach to construction was recommended by the designers and adopted by the mine operator. This involves a knowledgeable pre-assessment of what is likely to change and having contingency plans to deal with possible major issues. This approach allows changes to the design during construction so the “as-built” product is suited for the site, fit for purpose, and remains consistent with the overall intent of the design.

The TSF has been in operation since August 2009 and monitoring data of the structures has been collected during construction and operation. This data is reviewed to confirm design assumptions and assess dam performance.

KCB personnel involved with this project combined their experiences working in the PNG environment and dam building from other locations. This process led to close interaction between the mine operators, designers and construction teams. Teamwork and diligent construction practices were and will continue to be necessary to construct and operate the pioneering TSF in PNG.

“The tailings containment facility is a key part of our commitment to developing a sustainable future for our Company and for mining in the Morobe Province of Papua New Guinea.”

Mark Mitchell, General Manager, Hidden Valley Mine



Hidden Valley Mine, Papua New Guinea

FEATURE PROJECT

our clients

NAM THEUN 2

HYDROELECTRIC PROJECT

Winner of the CCE Award of Excellence and the CEBC Award of Merit

The 1074 MW Nam Theun 2 (NT2) Hydroelectric Project is the most important project in a long-term collaborative effort between Laos and Thailand to develop up to 3000 MW of hydropower energy in Laos for export to Thailand.

The project entails a trans-basin diversion of water from the Nam Theun River to the Project's powerhouse located at the base of the Nakai escarpment and from there to the Mekong River.



Nakai Dam, Laos

KCB was retained by the International Design-Build Construction Consortium Joint Venture of Italian-Thai Public Development Co. Ltd. from Thailand and Nishimatsu Construction Co. Ltd. from Japan (the ITD-NCC JV) for bid and final design engineering services for the project's two main civil works packages.

SUSTAINABLE DESIGN

The project was implemented on a philosophy based on best environmental practices and respect for the Lao people and their heritage. The NT2 hydro facilities represent sustainable design that has provided a long-term, high value asset that has the ability to drive the economy and development of Laos.

A major civil infrastructure project such as NT2 results in changes to the physical and social environment in the project area and beyond. At the start of the design process, KCB worked to balance the construction logistics, stakeholder concerns and environmental issues.

KCB provided a design that managed surface water run-off, protected and stabilized embankments and slopes and focused on environmental design to best manage the handling, treatment and monitoring of drainage water from the powerhouse. This included oil-water separation systems water discharged to the powerhouse tailrace and river system.

KCB worked closely with the Contractor to understand the construction material availability issues and the economics of sourcing locally and/or re-using construction materials. The KCB design for the main Nakai Dam employed a concrete and RCC mix that utilized fly ash sourced as a waste product from a thermal generating plant in Thailand. A significant portion of aggregate materials were sourced and produced at a local Lao rock quarry.

EMPLOYING THE LOCAL PEOPLE

Many elements of KCB's design were aligned with the Contractor's utilization of manual and/or labour intensive construction methods that provided jobs for Lao construction workers. The tunneling and underground works were designed to use drill-and-blast excavation techniques that required larger labour components compared with more mechanized excavation techniques. Skilled Lao stone masons were employed to carefully cut, sculpt and hand-place riprap in the extensive canal and drainage works constructed as part of the project.

AESTHETICS AND LAO CULTURE

The KCB design incorporated traditional Lao architectural elements to reflect the national heritage and the country's strong ties to Buddhism. In particular, the largest building structure in the NT2 project, the powerhouse, has a building façade that reflects traditional Lao architectural style.

KCB's final design commenced in late 2004 and continued through 2009. KCB provided civil, hydrotechnical, structural, geotechnical, electrical and mechanical engineering services. The project went into service and achieved commercial operation in March 2010. We are proud of the technical design that was accomplished on this challenging project and privileged to have helped contribute to the people of Laos and Thailand.



Powerhouse

FEATURE PROJECT

AENEAS DAM

REDEVELOPMENT PROJECT

The Aeneas Lake Dam is located at the south end of the former natural Aeneas (Charlie) Lake on the Penticton Indian Band's IR # 1 lands. The original Dam was built in the early 1900s with the spillway constructed in 1915. The Dam was used by the Kaleden Irrigation District until 1967 when it was turned over to Sumac Farms Ltd. The inlet gate structure of the Low Level Outlet was repaired in 1979. The Dam was not operating and has been under a long period of draw down because of leakage and the aging structure raised safety concerns.

This project involves the demolition and the reconstruction of a new irrigation dam, spillway, gate and low level outlet. The design was challenging because it had to address liquefaction, seepage, and the presence of large amount of organic silt and peat under the foundation of the new dam.

SAFE AND SUSTAINABILITY

KCB reviewed the previous designs for the Dam and recommended changes to ensure that a safe and sustainable design was implemented. The original design consisted of an intake tower with an access bridged walkway which was replaced by a sliding gate. This can be manually operated from the crest of the Dam eliminating the need for electricity. One critical change to the design eliminated confined space and fall arrest issues which would have occurred during maintenance operations.

Inflow Design Flood regulatory requirements increased the spillway capacity. To accommodate that the original design composed of a long concrete spillway structure was replaced by a combination of concrete structures within the core of the Dam and the use of stepped gabions for the spillway chute and the inlet.

The project utilizes existing material and local source material for the construction of the Dam. One source of local material is located 15 minutes away and is found at a sharp bend of an active truck road. The bend to the road will be eliminated improving the safety for travelers and the excess material used to build the impervious blanket and the core of the Dam.

The design will provide new structures which will be suited to this sensitive environment both environmentally and esthetically, which is of utmost importance for the First Nation Community.

TRAINING OPPORTUNITIES FOR THE COMMUNITY

Involvement of the Penticton Indian Band was possible during the design stage and will continue during construction with training opportunities in environmental monitoring, construction management, and technical supervision. During the operation of the Dam, an operator will be trained and designated to operated the gate and manage the irrigation demand as well as the seasonal fish flow requirements. These skills are transferable and will aid in securing employment opportunities.

"Klohn Crippen Berger applied unique solutions to the successful rehabilitation of the Aeneas Dam. Their design will maximize the use of existing and local sources of material and offered aesthetic solutions best suited to the environment. Efficiency and safety during maintenance were also addressed. We appreciate KCB's balanced approach to safety and sustainability in this project and feel that the outcome will benefit the community for generations to come."

Quote from Client



Aeneas Lake, British Columbia



our community

CORPORATE CITIZENSHIP

Corporately, we look for opportunities to support causes that our employees are passionate about and dedicated to. KCB supports a number of charitable organizations and community initiatives. In 2012, KCB donated over \$350,000 to a variety of organizations and events, many of which have been employee inspired.

Our contributions are not only monetary, we also support temporary leaves or provide time off for employees to continue their efforts during business hours. Employees have an option to have the value of their service award donated to a charity of their choice. We are inspired by our employees and encourage them to pursue volunteer opportunities and contribute to associations. Supporting their efforts benefits society and contributes positively to our corporate culture.

KCB is also committed to supporting educational institutions through endowments, co-op programs and guest lectures.

PARTICIPATION IN ACCREDITED ASSOCIATIONS

In addition to our memberships in professional organizations like APEGBC and APEGA, KCB actively participates and takes a leadership role in associations like: the ASFE, Consult Australia, the Canadian Engineering Association, the Canadian Geotechnical Society and the Canadian Dam Safety Association.

PARTICIPATION ON TECHNICAL COMMITTEES

We believe in giving back to the industries that we serve. Several technical papers have been authored by KCB professionals this year, employees have lectured at universities and several senior staff sit on technical committees and boards.

- Canadian Geotechnical Society, 2012 President, Bryan Watts
- Board of the Consulting Engineers of Alberta, Brian Rogers
- ICOLD - Chairman of the Technical Sub-Committee on Tailings and Waste Lagoons Projects for the International Commission on Large Dams (ICOLD), Harvey McLeod
- ASFE The GeoProfessional Business Association, Alex Sy, Vice Chair, Business Practice Committee
- Canadian Dam Association, Simon Douglas
- Mining Association of Canada, Len Murray
- Tunnelling Association of Canada, Garry Stevenson
- Women in Engineering Queensland, Kate Brand
- University of British Columbia Adjunct Professor, Alex Sy



EMPLOYEE GENERATED PROGRAMS

Urban Promise
Mining for Miracles Mine Rescue team
Ride to Conquer Cancer
Canadian Cancer Society Floor Hockey Tournament
Covenant House
Special Olympics BC
The Plywood Cup
Adrenaline Bike Race
Boundary Ford Curling Classic

CHARITY DRIVES

United Way
Terry Fox Fundraiser for Cancer
Strawberry Tea for Breast Cancer
Concrete Toboggan
APEGBC West Kootenay popsicle stick bridge building competition
UBC Women Engineers
WISE: Women In Science Engineering donation
Canadian Cancer Society Daffodil Day
Children's Hospital Jean's Day
Christmas Bureau Adopt a Family
Christmas Food baskets for Senior Citizens
Fare Fight for Food

Klohn Crippen Berger is proud to support the **United Way** and matches employee contributions in our annual campaign. Over the last 5 years, KCB and our employees have donated **over \$250,000** to help people in need in Canada.

SUPPORT FOR POST-SECONDARY EDUCATION

KCB provides endowments with the University of British Columbia, the University of Alberta and the University of Calgary.

We have been long-time supporters of the co-op program at UBC and in return in 2012 were named co-op employer of the year.

We also support the Engineering programs at a number of top notch universities through club and association sponsorships and donations.



The Commuter Challenge

In September, 2012 KCB invited its employees to participate in The Commuter Challenge. The goal was to divert as many kilometers as possible from daily commuting within a three week period. Our Vancouver and Calgary offices stepped up to the plate, upping the ante with a friendly office competition to see who could divert the most kilometers. KCB employees diverted 28,313 kms over the three week span by getting out of their single occupancy vehicles and commuting to work by carpool, public transit, bike or on foot.

A number of KCB staff share a love for cycling. KCB's individual Commuter Challenge winner Jeff Whitter logs approximately 3,500 km on his bike every year commuting to and from work. But he's not alone, there are many staff who can claim similarly impressive statistics. To support our avid cyclists, KCB has sponsored several team cycling events such as the Vancouver and Penticton Gran Fondos, the Ride to Conquer Cancer and the Adrenaline Bike Race.

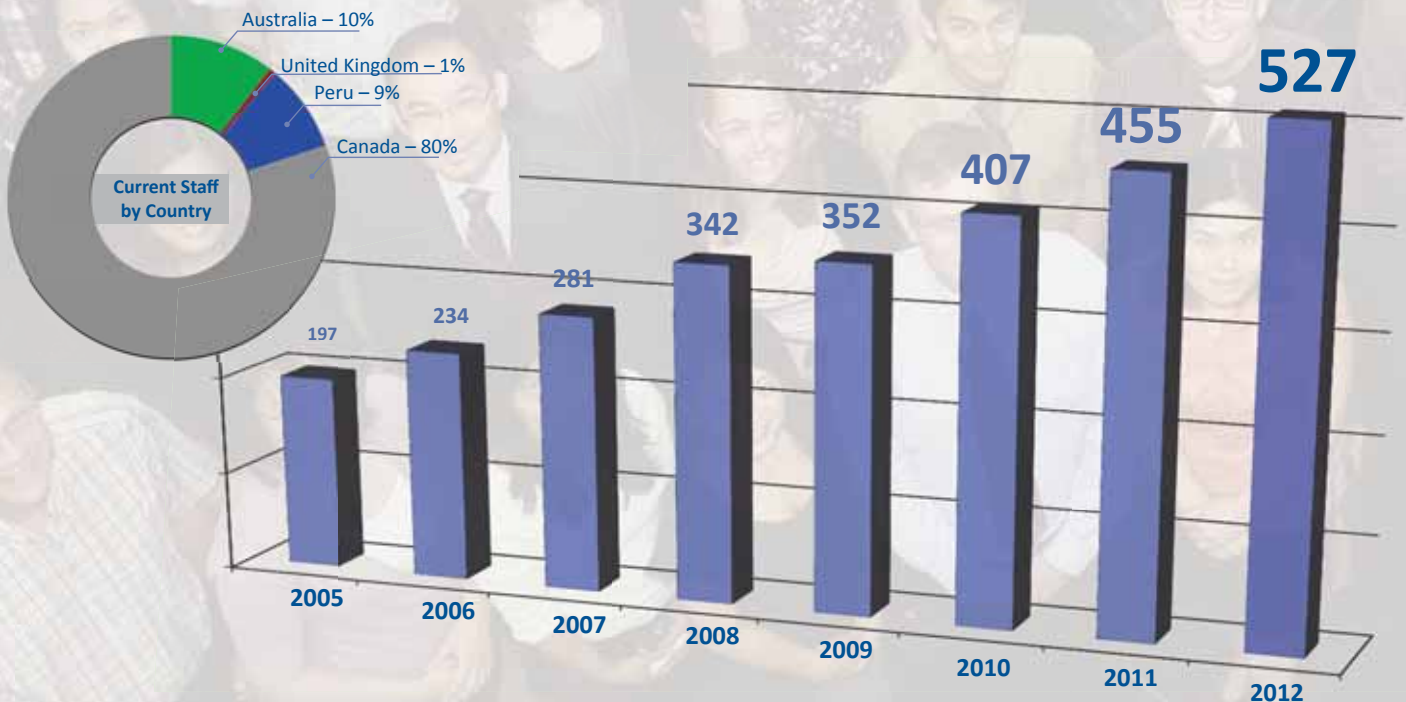


Team CyKlohn, Alberta



Gran Fondo team, British Columbia

STAFF COUNT



The average age of an employee at KCB is now 38 years vs. 41 years in 2005

266 of our employees speak a second language

74% of our staff has been with us for less than 5 years

HUMAN RESOURCES PRACTICES

KCB has been an exemplary employer for over 60 years during. Our employees have opportunities to work on challenging projects in a wide range of environments around the world. Because of our geographical diversity, we make it a priority to ensure that we comply with employment and human rights legislation in the areas of the world we are working in. KCB has a number of programs and policies all employees must become familiar with including our Employee Guidelines, Quality Management, Health and Safety, Anti-harassment Policy, and Respect in the Workplace training.

RESPECTFUL WORKPLACE

At KCB, we will act fairly, honestly and respectfully in our dealings with employees and in turn we ask that employees adhere to established policies and procedures as outlined in our Employee Guidelines, General Workplace Rules, Health and Safety and Anti-Harassment Policies. The company has developed these guidelines and policies aimed at supporting a respectful workplace to ensure employees are engaged, productive and aligned with corporate values. We strive to maintain a work environment in which differences are respected so all employees

can attain their career goals, and thereby make a full contribution towards KCB's business goals.

CODE OF BUSINESS CONDUCT AND ETHICS

The success of KCB depends upon the integrity of its employees, the quality of its services and on the trust and confidence of everyone with whom it deals.

All KCB employees are required to read and abide by the company's Code of Business Conduct and Ethics. KCB is committed to ensuring compliance with applicable employee privacy legislation.

Bribery is a criminal offence in all jurisdictions that KCB operates. KCB employees, agents, subcontractors and in general any person or organization that perform business for or on behalf of KCB, are forbidden from paying a bribe to or receiving a bribe from any third party under all circumstances.



Our Company Charter – including the KCB Values, Mission and Vision, create the foundation for our respectful workplace.

KCB is committed to providing a work environment that is:

Safe

Fair

Equitable

Accessible

Free from Harassment

our community

EMPLOYMENT EQUITY

It is KCB's policy to make decisions on hiring, promotion, job assignment and training, rewards and other human resource management functions on the basis of qualifications, ability, and performance. This ensures equality of treatment and opportunity for all employees and job applicants regardless of race, national origin, colour, religion, sex, marital status, physical disability or any other factor unrelated to job performance. KCB is a certified employer under the Canadian Government's Federal Contractors Program for Employment Equity Certificate Number 100113.

KCB's employee demographics have shifted considerably over the past five years as we bring in the next generation of professionals. The average age of employees is reduced, with over 50% of staff having five years or less service. More women professionals are joining the firm and new skill sets being required to

manage the wide variety of services being provided to clients.

A new program, that lines up with our Canadian Federal Contractors Employment Equity certification, has been implemented to track the changes within our workforce and analyze and address trends.

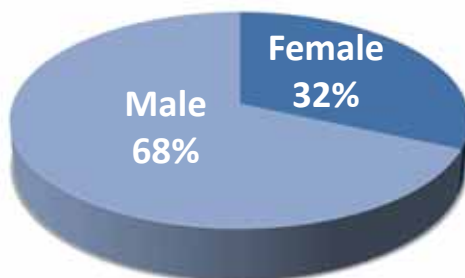
This year, KCB formed a Diversity Committee with six members representing a good cross section of senior management and geographic locations. The goal of the committee is to address issues affecting young parents, women and ethnic groups in the KCB workforce and the engineering industry as a whole.

*KCB Civil Engineer, **Kate Brand**, is the chair of the Women in Engineering Queensland this year, a great achievement as a result of her hard work and continuous involvement in promotion of engineering as a profession, and of her passion for diversity in the industry.*

Earlier this year, Kate commented on employment diversity in an interview with a local Queensland newspaper.

LA 1

WORKFORCE BROKEN DOWN BY GENDER



LA 13

MINORITY GROUP MEMBERSHIP

29.3% of our workforce are classified as minorities

LA 15

RETURN TO WORK AND RETENTION RATES AFTER PARENTAL LEAVE BY GENDER

90% of females and 100% of males return to work





SCARCITY:
Kate Brand
says there
aren't
enough
female
mentors.
Picture:
Annette Dew

BY THE NUMBERS

14%

PERCENTAGE OF WOMEN
ACCEPTED INTO UNIVERSITY
ENGINEERING COURSES

30%

WOMEN IN ENGINEERING
GROUP'S TARGET FOR
ENGINEERING STUDENTS
BEING FEMALE IN THE NEXT
5-10 YEARS

500

SCHOLARSHIPS OFFERED BY
THE QUEENSLAND
GOVERNMENT TO WOMEN TO
ENROL IN MALE-DOMINATED
PROGRAMS

\$10m

THE POTENTIAL VALUE OF
THE PROGRAM

12.7%

PROPORTION OF DEGREE-
QUALIFIED FEMALE
ENGINEERS IN THE
AUSTRALIAN LABOUR FORCE

40,000

SKILLED WORKERS NEEDED
BY 2016

Blueprint for a solid future

"More women are undertaking postgraduate engineering study and currently 23 per cent of our postgraduate engineering students are female," he says.

"A degree in engineering is virtually a passport to a fantastic job, be that within the mining, energy, transport or construction industries."

The Queensland Government is doing its bit, making 300 scholarships available of up to \$20,000 over four years to women to enrol in male-dominated programs such as engineering and the physical sciences.

While the lack of female industry role models is often cited as the reason more women don't look to engineering as a potential career, that wasn't a problem for Sarah Marsanich.

"I had a passion for science in Grade 11 and 12. My aunt worked and still works for ABCCOM and she inspired me to look at a career in engineering," says the 24-year-old, who graduated from Griffith University with a Bachelor of Engineering (Civil) in 2017 and is working as a graduate geotechnical engineer with ABCCOM.

Working to rebuild roads following the devastating Queensland floods, in a team of 30 in which she is one of two women, Marsanich says a career in engineering is "extremely diverse".

"I would encourage everyone to try and get more into the science, physics, maths because it really opens up doors," she says.

QUT mechanical engineering alumnus Yassin Abdel-Magied, who is working as a measurement while drilling engineer for Pathfinder within international oil and gas provider Schlumberger, says engineering being seen as a "male-dominated" profession didn't faze her.

I would encourage everyone to try and get more into the science, physics, maths because it really opens up doors

**GRADUATE
GEOTECHNICAL
ENGINEER
SARAH
MARSANICH**



"I just thought, 'well, this is what I want to do, I don't really mind who else does it as long as I can do it and do my best,'" she says. Although she admits that since graduating last year she has encountered "older mindsets" about women in the industry, this isn't common.

"I find most people really supportive and encouraging, especially if you are keen to learn and discover. I don't work with too many women - I am the first woman in my segment in Australia - and on the days there might be one or two ladies if I am lucky, but the field in particular is pretty male-dominated."

Having spent six years in the industry, Brand is keen to stress not every job in engineering involves a hard hat.

"There are hundreds of different forms of engineers and opportunities; you don't have to be on a site."

She says the increase in female students in the past five to 10 years, particularly in Queensland, has been positive but there is still some way to go before realising the goal of 30 per cent of engineering students being female.

Young women looking to work in the industry should "go for it", she says, but be willing to seek advice from the few female mentors around.

"Our main problem is encouraging them to stay. A lot of the time women finish uni and get discouraged (by) their initial job experiences and don't stay past the five-year mark," she says.

"That's where that support network comes in; finding people to bounce ideas off and to give you a handle on where you're going to go in the industry."

CAREER DEVELOPMENT

LONG TERM PLAN FOR BUSINESS GROWTH

Our commitment to provide an environment in which employees are supported in their career development is an important aspect of how we retain our employees. Our wide variety of training initiatives and mentoring programs ensure that we are developing the next generation of leaders.

GEOGRAPHIC TRANSFERS

Our employees have the opportunity to work in many countries and develop the confidence and skills to further develop projects. It is not only our Canadian employees who benefit but our Peruvian and Australian employees who freely and regularly move between projects and countries. Foreign skill development has allowed us to sustain revenues. Decades of foreign assignments have brought hundreds of millions of dollars to the economies in which we work. Literally hundreds of engineers and scientists have developed and passed on skills to succeeding generations. To ensure the sustainability of our international offices, the managers at these locations are Principals and Associates in the company.

MENTORING

Mentoring allows employees an opportunity to draw on the knowledge and skills of seasoned and talented KCB staff members. Giving employees the opportunity to learn and grow by sharing advice, getting guidance and on-the-job training that is directly applicable to the work contributes to their professional growth. Managers also benefit from being involved in the development of staff and have an important part to play in encouraging, facilitating and providing skills, guidance and feedback.

PROFESSIONAL DEVELOPMENT

KCB has been a strong supporter of the ASFE Fundamentals of Professional Practice (FOPP) program for nearly two decades. This tough but rewarding program which has been described as a “boot camp for the firm’s rising stars”.

ANNUAL PERFORMANCE REVIEW SESSIONS

Employees meet with their supervisors annually to review expectations, discuss job performance and set objectives for further development.

This year KCB held Performance Review Information Sessions for all staff to help employees and managers fully utilize their sessions.

RECOGNITION AS A TOP EMPLOYER

At a recent North American Human Resources Summit sponsored by PSMJ, KCB received recognition for being one of the Best A/E/C (Architectural, Engineering, Construction) employers in the large firm category. The award was based on the results of an employee engagement survey that looked at employee commitment, work culture, employee engagement in the promotion of overall firm success, employee development, leadership, and firm communication and hiring practices. We were thrilled when over 80% of our employees participated in the survey and provided us with the feedback that will help us to continue to enhance project related employee experiences and improve company-wide programs in areas like: training and professional development, communication, recruiting, rewards and recognition.

RECRUITING

One of KCB’s most significant challenges and a major influence on our continued growth is our ability to attract and retain the talented resources required to work on our clients’ projects. To address our unique recruiting needs, KCB has embarked on an innovative program that involved the creation of a micro website tailored to communication and engagement of high quality candidates, participation in international recruitment shows, and a “Boomerang” program that allows new and current staff to transfer to other locations (domestic and international) for a specific period of time.

KCB’S CAREERS PAGE



Down to Earth.
Up to the Challenge.

TRAINING

We support employee training and development to improve work performance, provide enrichment and prepare individuals to meet future organizational and client needs.

To enhance KCB's continued success and future growth, we are committed to maintaining a high degree of integrity and quality in our products, services, processes and procedures. To achieve this we ensure our employees understand their roles and are qualified to do them.

SCOPE

Training and professional development are the responsibility of both the company and its employees. Every staff member is expected to keep abreast of developments within their own area of expertise and encouraged to take ownership for their own personal development in relation to their work.

Our training initiatives not only involve the traditional learning opportunities such as courses and seminars but also include special project assignments, job shadowing and guided or self-directed learning experiences.

Two programs implemented this year were:

- KlohnPM - a project management toolkit consisting of 11 training modules.
- Consulting 101 - a series of lectures developed for KCB's young professionals. Senior managers speak on topics relevant to the consulting business such as project management, business development, risk management and budgeting.

KCB also provides support through a number of programs including job related technical and essential non-technical skills training, new employee orientations, in-house training, on-the-job training, tuition refunds, on-line training, mentoring and educational leaves.



THE SUSTAINABILITY INITIATIVE – EMPLOYEE ENGAGEMENT

KCB is proud to have launched the Sustainability Initiative in May, 2012. Our vision is to build a better world by applying a standard of reporting on our sustainability practices, communicating our successes and identifying opportunities for change. This applies to our internal operations and to our project work.

The Sustainability Initiative includes:

FORMING A GLOBAL SUSTAINABILITY COMMITTEE: Our Sustainability Committee has representatives from each major business unit which consists of engineers and scientists, three are Associates. Members from our Corporate Services Group are also represented.

CONDUCTING AN EMPLOYEE SURVEY: It garnered an impressive 216 responses (over 40% of our employees). We are now using the input received to guide our in-office initiatives.

FORMING ENVIRONMENTAL COMMITTEES: We asked for volunteers to help implement in-office initiatives. KCB had established committees in three of our offices prior to the survey. Now we have committees in seven offices and 36 new volunteers in place doubling our current efforts.

DEVELOPING A SUSTAINABILITY SITE ON OUR INTRANET: This site serves as a place to communicate our goals related to sustainability and our progress towards those goals. The sustainability blog is in the top 10% of most viewed pages on our intranet.

our environment

At KCB, we feel that our greatest opportunity to positively impact the environment is found working with our clients delivering on our commitment to provide safe and sustainable solutions for their projects. Much of what is accomplished through our work is tracked through these organizations' own reporting processes.

However, we do try to make sensible choices in our day-to-day operations to minimize the impact we have on the environment. This section of the report is focused solely on addressing the GRI key performance indicators that pertain to in-office practices.

For our inaugural report we are reporting on our two largest offices: Calgary, Alberta and Vancouver, British Columbia. These offices represent over 65% of our operations and span all three business units.

EN 3 & 4 – Energy Use

Energy usage (direct and indirect) was determined by collecting information from energy suppliers based on billing information, where available. Direct energy sources include fuels (e.g. natural gas) used for heating our offices. Indirect energy sources include imported electricity.

There is a noticeable difference in the energy used between the two offices. A major contributing factor is Calgary's climate; Calgary's winter is much colder and of longer duration when compared to Vancouver resulting in Calgary ultimately using more energy.

EN 7 – Initiatives to reduce direct and indirect energy consumption and reductions achieved

Printers are set to sleep after designated time of inactivity; we have implemented a power initiative to raise awareness regarding phantom power and the importance of turning off your computer and monitor.

EN 18 – Initiatives to reduce GHG emissions and reductions achieved

In 2012, KCB invested in upgrading our communication systems to streamline communications in our global operations. These systems include video conferencing (in meeting rooms and desktop), unified messaging and web conferencing. We have had some of these systems in place for a while, but are upgrading to more robust systems to improve their efficacy. Once in place we hope to utilize these alternative forms of communications in reducing the need to travel for meetings.

As a company we are avid supporters of Bike to Work Week but beyond this we have a very active employee base that is best represented by the number of employees that cycle to work on a regular basis.

KCB also promotes Rideshare Programs and our Vancouver office offers a transit pass subsidy to its employees when 25 or more people sign up.

EN 1 & EN 22 – Waste Disposal and Recycling

Typical waste materials that are generated from our office functions include general refuse, kitchen waste, aluminum cans, paper, cardboard, and packaging materials. Other types of waste materials include used equipment, office furniture, lighting fixtures and bulbs, computers/electronics, and laboratory wastes. The laboratory waste that is classified as hazardous is managed separately based on required legislation.

As is standard practice every KCB office recycles plastics, metals and paper fibers. Many of our offices also have in-office battery depots and our Calgary office has an in office bottle return. Each office complies with municipal standards for recycling and waste pickup and segregates waste and recyclables as required. Our offices in Calgary and Vancouver have composting programs.

VANCOUVER	Number of People	234
	Office Area (ft ²)	31,879
	Electricity (kWh)	940,773
	kWh/person/year	4,020.4
	Natural Gas (GJ)	1,076.4
	GJ/person/year	4.6

CALGARY	Number of People	145
	Office Area (ft ²)	26,300
	Electricity (kWh)	1,022,432
	kWh/person/year	7,051.3
	Natural Gas (GJ)	3,655.6
	GJ/person/year	25.2

Company-wide we make a conscious effort to donate our used electronic equipment to schools or charitable organizations. What is too old or beyond repair is given to electronic recycling companies.

As a consulting firm KCB generates a significant amount of reports and other deliverables for our clients. As a result our paper consumption is high. Our printers are set to automatically print double sided and black and white reducing paper waste and ink. We also encourage the sharing of information through alternate means: our intranet, e-mail and shared electronic project folders.

Many of our offices have eliminated the use of disposable items such as cutlery, paper cups, plastic plates and bottled water from their kitchen in an effort to reduce waste. We also equip our lunchrooms with reusable dishes to help reduce the need for our employees to used disposable material.

BETTER CHOICES

EN 14 – Strategies, current actions and future plans for managing impacts on biodiversity

Historically, our offices have implemented new in-office environmental initiatives on an individual basis. With the launch of the Sustainability Initiative in 2012, we have begun to coordinate our efforts globally, using the Sustainability intranet and global committee meetings to share best practices and implement company-wide initiatives to help reduce our carbon footprint.

In an effort to balance our high consumption, our Vancouver office currently purchases copy paper that contains 30% post -consumer content and our Brisbane office uses toilet paper that is 100% post-consumer content. We are exploring increasing the

PCC in our paper use office wide. The majority of our copy paper is FSC Certified.

Our Saskatoon office recently chose a green supplier to furnish their new building. The new office furniture will be 67% recyclable and made of 50% recycled content. The materials used are regional and rapidly renewable. This is a step in the right direction that KCB is proud of.

We look for opportunities to make better purchasing decisions. Most recently our IT Department has implemented a policy to purchase BFR-PVC free adaptors for company laptops whenever possible. This eco-friendly option reduces the amount chemicals used in the manufacturing of electronics.

OFFICE LOCATIONS

KCB understands the value of leasing from a sustainably minded operator. Two of our offices are located in Bentall Kennedy campuses. Bentall Kennedy, one of North America’s largest diversified real estate investment advisors and real estate services organizations ranked first in its class in the Americas for environmental, social and governance (ESG) performance by the Global Real Estate Sustainability Benchmark (GRESB) for the second year in a row.

Our head office is strategically located by a skytrain station and a major bus route and also has direct access to safe biking lanes. Many of our offices are equipped with bike lockers and showers to accommodate our avid cyclists.

RAISING AWARENESS

KCB recognizes that communication is key to success. We have taken every effort to ensure our initiatives are communicated effectively throughout the company through e-mail, company intranet, presentations, committee meetings and the Sustainability blog. Most recently, the blog was used to promote the United Way Campaign, Commuter Challenge between Calgary and Vancouver, Calgary’s Power Campaigns and the One Simple Act campaign in our Calgary and Brisbane offices.

PAPER CONSUMPTION		8.5 x 11 sheets	11 x 17 sheets	Total Sheets
	Vancouver	1,260,000	205,000	1,465,000
	Sheets/person	5385	876	6221
	Calgary	805,102	97,530	902,632
	Sheets/person	5552	673	6225

GRI LEVEL C COMPLIANCE MATRIX

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1.1	Message from the President	1
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3.1-3.7	Profile and Boundary	2, 3
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4.14-4.15	Stakeholder engagement	5, 17, 24
EN 1	Materials used by weight and volume	25
EN 3&4	Direct and indirect energy consumption	25
EN 7	Initiatives to reduce energy consumption and reductions achieved	25
EN 18	Initiatives to reduce GHG emissions and reductions achieved	25
EN 1 & 22	Materials used by weight and volume and total weight of waste by type and disposal method	25
EN 14	Strategies, current actions and future plans for managing impacts on biodiversity	26
EN 26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	16
LA 1	Total workforce by employment type, employment contract and region broken down by gender	21
LA 11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	5, 23, 24
LA 15	Return to work after parental leave	21
SO 1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	6, 17, 18
HR 3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.	24
PR 1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.	9, 10

We used the GRI level C compliance matrix to focus our efforts and selected KPIs from each GRI indicator set to reflect the items we believe to be of most value to our stakeholders.

KCB KEY PERFORMANCE INDICATORS

Category		Page
Environmental	Responsible water management	12, 14
	Special consideration for flora/fauna	12, 13
	Rehabilitation beyond industry standard	12, 14
Social	Mentoring local people	16
	Design/service to improve social conditions	12, 13, 15, 16
	Transfer of technology	16
Innovation	Advancement in research and technology	13
Design	Responsible land use design including relocation, land use reduction, using existing infrastructure	12, 16
	Designs to reduce, repurpose/reutilize remaining materials	15, 16
	Design to improve safety conditions	12, 16

We have identified additional KCB key performance indicators to report on sustainable practices in our work.

GLOSSARY OF TERMS

GLOBAL REPORTING INITIATIVE

The Global Reporting Initiative (GRI) is a non-profit organization that promotes economic, environmental and social sustainability. GRI provides all companies and organizations with a comprehensive sustainability reporting framework that is widely used around the world.

DIRECT ENERGY

Forms of energy that enter the reporting organization's operational boundaries. It can be consumed either by the organization within its boundaries, or it can be exported to another user. Direct energy can appear in either primary (e.g., natural gas for heating) or intermediate (e.g.,

electricity for lighting) forms. It can be purchased, extracted (e.g., coal, natural gas, oil), harvested (e.g., biomass energy), collected (e.g., solar, wind), or brought into the reporting organization's boundaries by other means.

INDIRECT ENERGY

Energy produced outside the reporting organization's organizational boundary that is consumed to supply energy for the organization's intermediate energy needs (e.g., electricity or heating and cooling). The most common example is fuel consumed outside the reporting organization's boundary in order to generate electricity to be used inside the organization's boundary.

SUSTAINABILITY

United Nations definition "sustainability is the long-term maintenance of responsibility, which has environment, economic and social dimensions and encompasses the concepts of stewardship, the responsible management of resource use."

KEY PERFORMANCE INDICATOR

Specific ways to measure performance
e.g. energy consumption



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