

March 1, 2024

Executive Director's Message

SIMSA's office features a piece art by Saskatchewan artist [Nicki Ault](#) entitled "Under a Prairie Sky." The item consists of four separate panels, with a total dimension of 40" x 85." You will notice four core-SIMSA-member segments in the image; an oil pump jack on panel one, a mine head frame on panel 2, a hydro-project on panel 3, and an SMR on panel 4.



On March 19th SIMSA's Nuclear Specialist – Tom Kishchuk – will present his findings on; (1) what are the major components required to build a reactor in Saskatchewan, (2) our existing supply chain's ability to fulfill these, (3) what else is needed, (4) what has greater economic viability, (5) the scale of the local and global opportunity, and (6) policy options related to quality standards, localization targets and global sourcing strategies.

As SIMSA's Nuclear Specialist, Tom is working to maximize the amount of Saskatchewan content for new nuclear development in Canada and globally, especially in Saskatchewan, including but not limited to: Small Modular Reactor component manufacturing, construction services, and nuclear fuel supply chain.

All are listed on our events page [HERE](#).

Stemming from the 2023 SIMSA AGM, our Board will be populated with 9 Regular and 3 Open member seats. As such, the 2024 Board nominations will now allow for Open members' eligibility. The Open member candidates must be a permanent residence of Saskatchewan (SIMSA may ask for proof of this).

SIMSA's 2024 AGM will also see us change to online voting. There will be nominations through an email system in mid-March (as before), but the actual voting process will occur via an online system this year, powered by a system provided by Saskatoon based Inshtrix.

The SIMSA AGM timelines are as follows:

- March 18, 8:00 am - Call for nominations commence via email system
- March 28, 9:00 am - Nominations cease
- April 10, 8:00 am - Notice of AGM with ballot sent (with nominees' bios) by Inshtrix
- May 10, 9:00 am - Completed ballot submission ends
- Wednesday, May 15, at noon – AGM in Saskatoon

The 2024 16th Annual Saskatchewan Mining Supply Chain Forum's tradeshow has been expanded from last year's, which brings the total number of booths to 380. There will also be 25% more time for the tradeshow this year.

The event will take place on April 17 and 18, 2024 at Prairieland Park in Saskatoon, SK. The mining companies expect to use 11 booths this year, which 50% more than last year.

To date, ticket sales are tracking 51% ahead of last year's.

The high-level 2024 MSCF Draft Agenda is:

- Tuesday, April 16
Tradeshow set up (no set up permitted on April 17)
- Wednesday, April 17
Speakers will be 8:00 - 12:00 (subject to change)
Tradeshow open 10:00 – 6:00
- Thursday, April 18
Speakers will be 8:00 - 12:00 (subject to change)
Tradeshow open 10:00 - 4:00

Member's News

[Checkout our feature in The Construction Source Magazine - JA Tech](#)

[Noble Construction Corp. – Celebrating Two Decades of Success](#)

[Team Power Solutions' Global entity TPSX exhibits at SME's Minexchange in Phoenix](#)

[PremSet Gear available for demo at Team Power Solutions' Corporate Office in April](#)

Advocacy

Labour seems to be a key issue amongst SIMSA members. As such, SIMSA's executive Director Eric Anderson spoke with Immigration and Career Training Minister Jeremy Harrison on the topic on January 22 in his Regina cabinet office, then again with himself and Deputy Minister Richelle Bourgoin on February 12 in the Legislature, and then with Bourgoin again on February 27 in the SIMSA office.

The conversations were around SIMSA's desire to help better align the multiple agencies working in the labour development area – ranging from Grade 4 through post-secondary.

SIMSA will be attending the PDAC Convention on March 3 – 5 in Toronto. The focus will be securing international opportunities for our membership. The areas of focus will be potash and uranium mining in Kazakhstan, plus potash mining in Argentina and Brazil. SIMSA's Eric Anderson has meetings scheduled with various CEOs from those regions. There are additional meetings with the UK High Commission to Canada, NGen, and others.

Nuclear

Nuclear Fuel Supply Chain

Definitions

- Natural uranium contains about 0.7% of the U-235 isotope and about 99.3% of the U-238 isotope
- The U-235 isotope is used for nuclear fission processes
- Low Enriched Uranium (LEU) fuel contains uranium enriched up to 4.8% U-235
- Low Enriched Uranium+ (LEU+) fuel contains uranium enriched up to 10% U-235
- High Assay Low-Enriched Uranium Fuel (HALEU) contains uranium enriched up to 20% U-235

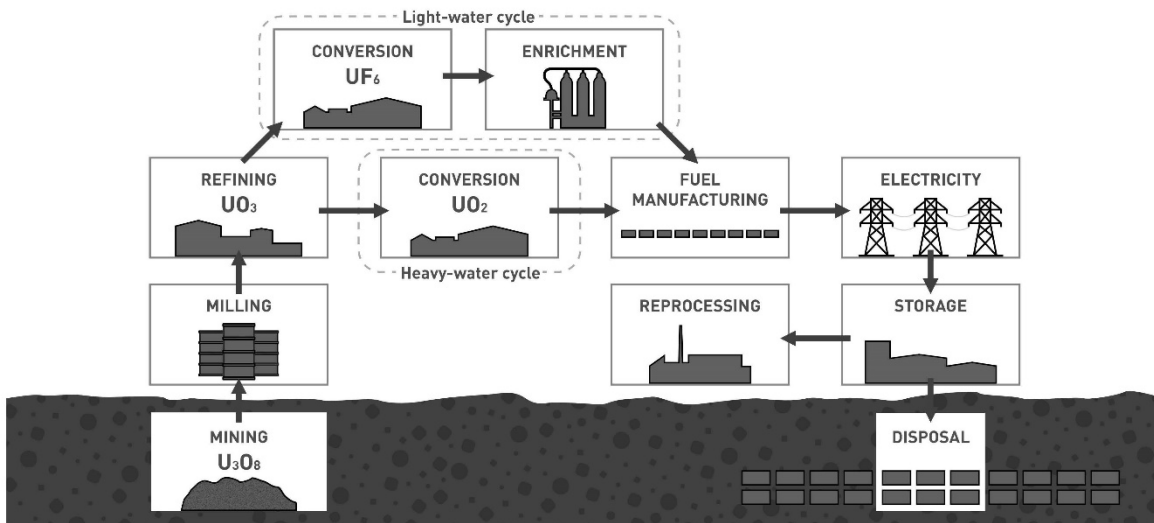
Level of Enrichment vs Reactor Type

- The Canadian designed Candu uses natural uranium at 0.7% U-235
- Boiling Water Reactors (BWRs) and Pressurized Water Reactors (PWRs) are light water reactors and historically have used U-235 that has been enriched up to 5% U-235
- Multiple companies are working on processes and approvals to supply LEU+ fuel for use in existing BWRs and PWRs in order to improve the fuel cycle economics
- Many of the advanced reactor designs will require HALEU fuels

Nuclear Supply Chain in Canada

The graphic shown below depicts the nuclear fuel supply chain in Canada and was extracted from the website of the Canadian Nuclear Association [Nuclear Fuel | Canadian Nuclear Association \(cna.ca\)](https://www.cna.ca/en/nuclear-fuel).

NUCLEAR FUEL CYCLE



With the exception of the Enrichment, Reprocessing and Disposal components, all of the process steps shown in this graphic are currently completed in Canada.

Recent News

With the continued operation of existing nuclear power plants and the anticipated deployment of several new reactor designs there is significant worldwide activity to build capacity within nuclear fuel supply chains. A sampling of recent articles from the World Nuclear News:

GNF Gets Approval to Manufacture Higher Enrichment Fuel (February 15, 2024) [GNF gets approval to manufacture higher enrichment fuel : Uranium & Fuel - World Nuclear News \(world-nuclear-news.org\)](https://www.world-nuclear-news.org/Articles/GNF-gets-approval-to-manufacture-higher-enrichment-fuel)

GLE Laser Enrichment on Track for 2024 Demonstration [GLE laser enrichment on track for 2024 demonstration : Uranium & Fuel - World Nuclear News \(world-nuclear-news.org\)](https://www.world-nuclear-news.org/Articles/GLE-laser-enrichment-on-track-for-2024-demonstration)

Westinghouse Expands Fuel Offerings of Columbia Plant [Westinghouse expands fuel offerings of Columbia plant : Uranium & Fuel - World Nuclear News \(world-nuclear-news.org\)](https://www.world-nuclear-news.org/Articles/Westinghouse-expands-fuel-offerings-of-Columbia-plant)

Further reading:

[Uranium Enrichment | Enrichment of uranium - World Nuclear Association \(world-nuclear.org\)](https://www.world-nuclear-association.org/uranium-enrichment)

[US Nuclear Fuel Cycle | Nuclear Fuel Cycle in the United States - World Nuclear Association \(world-nuclear.org\)](https://www.world-nuclear-association.org/uranium-fuel-cycle)

Industrial Concierge Update

ESG in Mining: What Do You Need to Know? with Candace Laing on February 29th

Over 50 people joined us on February 29th at the Saskatoon Inn to hear Candace Laing (formerly of Nutrien) speak to what is the current state of ESG (or sustainability) in mining, followed by Karri Howlett.



Candace Laing

In the evolving landscape of mining and industrial sectors, the importance of Environmental, Social, and Governance (ESG) is becoming increasingly evident. Buyers are beginning to seek comprehensive ESG information from suppliers during the procurement process.

In addition to this event, we are offering a series of three ESG strategy workshops to our members. These sessions, led by Karri Howlett, are tailored to empower members in crafting and sharing sustainability information that resonates with buyers.



Karri Howlett

They are structured to provide a comprehensive overview of the ESG process, offer essential tools, and guide members in implementing a robust ESG strategy and reporting mechanism within their businesses. SIMSA is committed to supporting members throughout their ESG journey, offering resources and guidance at every step.

Understanding the diverse needs of our members, we have organized the workshops to cater specifically to distinct industry groups based on common ESG topics and industry categories. Members should only attend the one workshop that is applicable to them:

1. [Group 1](#): Construction, Engineering, and Professional Services on March 26th
2. [Group 2](#): Manufacturing, Fabrication, and Distribution on March 27th
3. [Group 3](#): Site Services and Drilling on March 28th

About Candace Laing

Candace is currently the Board Chair for the Canadian Chamber of Commerce. She is a Fellow of the Chartered Professionals in Human Resources and has studied business and public policy at the University of Saskatchewan. Her career has spanned both private and public-sector organizations — with a focus on initiatives that create long-term value and high-performance cultures. She spent nearly 10 years managing Nutrien’s talent development efforts and launching Nutrien’s ESG efforts. She led the development of Nutrien’s sustainability strategy and Feeding the Future plan, an ambitious roadmap to meet Nutrien’s 2030 sustainability commitments.

About Karri Howlett

Karri Howlett is President of Karri Howlett Consulting. Karri provides ESG, financial strategy, and quantitative risk assessment consulting as well as helping companies prepare for ownership transition or new investment. Karri was previously President of RESPEC Consulting Inc., which is an employee-owned geoscience and engineering consulting company based in Saskatoon, Saskatchewan, and led the acquisition of the previous company in 2009, followed by the subsequent sale to RESPEC in 2016. She currently sits on the Boards of NexGen Energy (as Chair of the Sustainability Committee), Gold Royalty (as Chair of the ESG Committee), March Consulting, and the University of Regina Board of Governors.

Sector News

There seems to have been a breakthrough in welding techniques applicable to nuclear work, as it appears that with a new technique (see story below from [HERE](#)) sees a – “Nuclear SMR welding breakthrough: A year's work now takes a day.”

In the story, the volume under vacuum is very small and the weld position is horizontal, rather than flat. Electron Beam Welding (EBW) needs to be done under a relatively high vacuum to obtain the requisite weld quality. In the EBW process that many are familiar with, the entire chamber in which the part is being welded was evacuated, a process that could take several hours.

Some interesting within the below article:

- Sheffield was acquired by the UK's Ministry of Defence in 2021
- Sheffield is supplying both the raw materials (forgings) and completed weldment
- Sheffield has recently completed an ASME Code Survey audit and has been recommended for certification as a material supplier (MO) and a supplier of weldments (NPT) in accordance with ASME Section III Division 1 NCA 3300, NCA 4000 and NQA-1
- Sheffield has signed a number of agreements with SMR design companies. In October 2023 it signed a memorandum of understanding (MOU) with US X-energy and Cavendish Nuclear (a UK subsidiary of Babcock International) to explore opportunities around the deployment of a fleet of Xe-100 high temperature gas-cooled reactors (HTGRs) in the UK. Under the MOU, X-energy and Cavendish Nuclear will make use of Sheffield Forgemasters' extensive experience in developing nuclear forgings and castings. The companies plan to build up to 40 Xe-100s across the UK.

It would be interesting to explore if Sheffield has plans to license this technology for use outside of the UK?

Another article with more technical article is here: [Sheffield Forgemasters completes SMR nuclear vessel demonstrator - Nuclear Engineering International \(neimagazine.com\)](https://neimagazine.com/sheffield-forgemasters-completes-smr-nuclear-vessel-demonstrator)

Nuclear SMR welding breakthrough: A year's work now takes a day

By David Szondy

February 20, 2024

<https://newatlas.com/energy/nuclear-reactor-weld-one-day/>



The reactor vessel welded by the new method

Small Modular Reactor (SMR) construction shifts into high gear, as UK company Sheffield Forgemasters welds a full-size nuclear reactor vessel in under 24 hours instead of the usual 12 months. The rollout of this game-changing tech could be massive.

Modular reactors have the potential to revolutionize the nuclear power industry by turning nuclear generating plants from major civil engineering projects to factory-produced commodities. Instead of being essentially one-offs, modular reactors have a standardized design, can be mass produced, installed in any number required to serve local needs, and don't require the incredibly expensive buildings conventional reactors depend upon.

The problem is that there are bottlenecks in how to build reactors of any size. One is welding the vessels used to contain the reactor core, isolating it from the outer environment. Using conventional techniques, this can take over a year, but Sheffield Forgemasters have reduced this to under a day using what is called Local Electron-Beam Welding (LEBW) to complete four thick, nuclear-grade welds.

LEBW is a revolutionary method to weld two pieces of metal together using a high-energy density fusion process centered on a high-powered electron gun operating in a local vacuum. This melts and fuses components to one another and allows for an efficiency of 95%, deep penetration, and a high depth-to-width ratio.

The upshot is that Sheffield Forgemasters was able to complete a vessel three meters (10 ft) in diameter with 200-mm (8-in) thick walls with what is claimed to be zero defects and at lower costs. In addition, the welding machine can handle innovative sloping-in and sloping-out techniques to start and finish the weld.

This demonstration, a world first, is a significant milestone for the British nuclear sector, which has been moribund for decades with advances only in reactors for nuclear submarines, a couple of showcase power plants, and nuclear fuel processing. Now, the UK government is looking toward a nuclear renaissance, with new plants planned – including 15 modular reactors to be constructed by [Rolls-Royce](#).

"The implication of this technology within the nuclear industry is monumental, potentially taking high-cost welding processes out of the equation," said Michael Blackmore, Senior Development Engineer and Project lead. "Not only does this reduce the need for weld-inspections, because the weld-join replicates the parent material, but it could also dramatically speed up the roll-out of SMR reactors across the UK and beyond, that's how disruptive the LEBW breakthrough is."

Upcoming Events

Register for Upcoming Events [HERE](#)

- **Lunch & Learn: Sutton Benefits & Pension – March 15, 2024**
Discover 6 key insights to boost your competitiveness, stand out in the labour market, and tackle recruitment & retention challenges.
- **SIMSA Nuclear Supply Chain Update to Members – March 19, 2024**
SIMSA's Tom Kishchuk presents Nuclear Supply Chain Report
- **ESG Workshop 1 - Construction, Engineering, and Professional Services – March 26, 2024**
A follow-up event to ESG in Mining: What Do You Need to Know?

- **ESG Workshop 2 - Manufacturing, Fabrication, and Distribution – March 27, 2024**
A follow-up event to ESG in Mining: What Do You Need to Know?
- **ESG Workshop 3 - Site Services and Drilling – March 28, 2024**
A follow-up event to ESG in Mining: What Do You Need to Know?
- **Saskatchewan Mining Supply Chain Forum (MSCF) – April 17 & 18, 2024**
The 16th Annual Saskatchewan Mining Supply Chain Forum will take place on April 17 and 18, 2024 at Prairieland Park in Saskatoon.
- **SIMSA AGM – May 15, 2024**
Save the Date! The SIMSA AGM will be on May 15, 2024 at Prairieland Park in Saskatoon.
- **Lunch & Learn: Saskatchewan Research Council (SRC) – May 31, 2024**
Find out more about who SRC is and the interesting projects and services they have been involved with over their more than 75-year history.
- **BHP Roundtable – September 25, 2024**
Save the Date! SIMSA’s BHP Roundtable will be on September 25, 2024 at Prairieland Park in Saskatoon.
- **Saskatchewan Suppliers Energy Forum (SSEF) – October 2, 2024**
Save the Date! The 10th Annual Saskatchewan Suppliers Energy Forum will be on October 2, 2024 at the Delta Hotel in Regina.

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