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Celebrating 60 years of science solutions

Although the past 60 years have brought significant changes at the Saskatchewan Research Council, what has remained constant is the organization’s unwavering commitment to leveraging science and technology in support of Saskatchewan and its residents.

Established by the province in 1947, SRC began as a granting agency funding applied research at the University of Saskatchewan. Fast forward to 2007 and SRC’s role has evolved to a world leading developer of science-based solutions to the challenges facing industry. This year, SRC is undertaking -demonstration of a tractor that runs entirely on hydrated ethanol, producing a new vaccine to control post-weaning diarrhea in pigs, and has met record-setting demand for its analytical services from the diamond, gold, and uranium industries.

Sixty years ago SRC had no employees or facilities of its own, and its funding came exclusively from government. Today, it has almost 350 employees working in Saskatoon and Regina. Some 1,800 clients—more than half of whom are in Saskatchewan—now account for 80 percent of SRC revenues.

In 2007, SRC’s work contributed to more than \$400 million in direct economic benefit to the province and created, or helped maintain, about 3,000 jobs. And it is poised to embrace an even brighter future, according to SRC President and CEO Dr. Laurier Schramm.

“We have more than doubled our activity level and revenues during the past five years and are continuing to improve and expand our capabilities. SRC’s employees are helping our customers thrive in the world economy and are providing extensive benefits to Saskatchewan. This is a trend we see continuing well into the future.” ■



New instrument to help *biofuel producers*

A new instrument in SRC's Biofuels Test Centre™ will help producers expand and satisfy their markets. The High-Frequency Reciprocating Rig (HFRR) measures a fuel's lubricity (lubricating ability) and was installed in September 2007.

Lubricity is a critical quality in fuel. A low lubricity value can cause fuel injectors to fail; a high lubricity value cuts friction between contacting metal parts and lengthens component life.

John Robinson, manager of the centre, explains that lubricity additives in diesel are a big part of the biofuels market. Blending in biodiesel restores lubricity that was lost when diesel refiners drastically reduced sulphur



The rig is housed in a temperature- and humidity-controlled cabinet (left). The microscope (centre) is used to view and measure scuff marks on the steel disc.

content to meet new standards. Robinson expects routine blending of biodiesel with regular diesel to take off.

“The HFRR allows us to confirm the lubricity

of a client's biodiesel, blend, or lubricant with a time-efficient, certified method,” says Robinson. “It may soon become a required test and we are the only lab in Saskatchewan that does it.”

Testing involves immersing a steel disc in the oil, lowering a steel ball onto the disc and vibrating it at 50 hertz for 75 minutes. The diameter of the resulting ‘scuff mark’ is measured under magnification and must not exceed 520 microns.

The rig enhances the capabilities of the Biofuels Test Centre™, which already provides a full test suite that meets industry specifications. ■

Abandoned *uranium mines* slated for cleanup



Uranium mine sites in northern Saskatchewan

that were abandoned decades ago will soon be cleaned up.

The Saskatchewan Research Council (SRC) has been contracted to cleanup the sites, a project which will be jointly funded by the governments of Canada and Saskatchewan. These sites were mined by private companies during the 1950s and 1960s and later abandoned. The project, dubbed CLEAN S (Cleanup of Abandoned Northern Sites), involves 37 mine and mill sites near Uranium City.

The Gunnar mine site is the largest and will require the most work. There is an open pit,

abandoned buildings, tailings areas and waste rock piles. The other mine sites are smaller and do not have tailings.

SRC has completed some preliminary work such as site assessment and consulting with residents of Uranium City and First Nations leaders. Development and implementation of a remediation plan are next and will include consulting with stakeholders, completing environmental impact assessments, and obtaining approvals and licences. Many of the cleanup activities will be subcontracted. The sites are spread out over a large area that is not readily accessible in the winter, so most of the on-site work will be done in the summer months.

The majority of the work will occur during the



The mine headframe at the old Gunnar site.

next eight years, followed by a number of years of environmental monitoring. ■

New vaccine helps secure *Canadian hog production*

SRC is producing a new animal vaccine after receiving regulatory approval from the Canadian Food Inspection Agency (CFIA).

Bacterial infections in livestock have long been a concern for agri-food sectors domestically. While Canada has been a leader in vaccine development, there is a lack of manufacturing infrastructure to produce vaccines.

PREVTEC microbia inc., an animal health company based in Quebec, has developed a new, highly effective vaccine, called Coliprotec. However, it does not have facilities to produce the vaccine in the quantity needed for commercialization. The vaccine controls post-weaning diarrhea in pigs, a disorder that can spread and destroy an entire swine population.



SRC is manufacturing a new animal vaccine in Saskatoon.

SRC's Fermentation Pilot Plant can meet production requirements and has the quality

control systems in place to meet regulations. In 2006, PREVTEC partnered with SRC to carry out the testing needed to secure regulatory approval for production.

This November, SRC and PREVTEC successfully completed pre-license work and received a production license. SRC's Fermentation Pilot Plant is now the only contract research organization in Canada with this license. The collaborative work of SRC and PREVTEC is a significant accomplishment, as Coliprotec is one of the few licensed animal vaccines developed and manufactured in Canada.

This is just one example of how SRC's Fermentation Pilot Plant can provide significant benefits for Canada's animal health and agri-food sectors with researchers able to produce safe, reliable vaccines domestically and ensure the safety and health of animals. ■

New technology will help protect *environment in oilfields*

With substantial growth in the oil and gas industry in the last few years, environmental, regulatory and inventory management concerns have also grown. This has increased pressure on the industry to monitor crude oil inventories to prevent spills. However, due to the high costs of available technology, industry has been slow to adopt efficient fluid level monitors in crude oil storage tanks.

Acutec Systems Ltd., an oilfield instrumentation company based in Lampman, Saskatchewan, identified a need for liquid level sensing devices that were cost-effective, with low installation and maintenance requirements. Led by its president, John Grimes, Acutec approached SRC to develop a level sensing system using intelligent systems technologies to determine liquid level. Based on a previous successful technology development experience with SRC, Grimes was confident it had the abilities required to make his vision a reality.

Through a collaborative effort with SRC, Acutec developed a cost-effective intelligent level sensing system (ILS) and a spinoff technology—a low power satellite modem system that can be used in the field to transmit level and alarm data. While the ILS is being refined into a market-ready product, the satellite communications system, Acutec Messenger, has been successfully introduced and is beginning to achieve significant market penetration.

Accurate monitoring of oil levels is critical to prevent spills. Making affordable technology that provides accurate information will entice the oil industry to adopt it more quickly, which will help protect Saskatchewan's environment and support our economy. ■

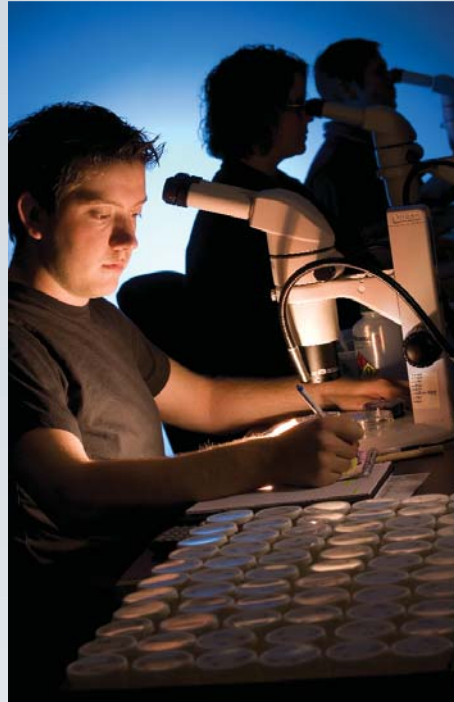
Through a collaborative effort with SRC, Acutec developed a cost-effective intelligent level

New high-security diamond facility opens

SRC opened a new high-security diamond analysis facility in Saskatoon this summer. To meet the growing industry demand for a full-service lab in Saskatchewan, SRC expanded its existing Geoanalytical Laboratories diamond operations, effectively doubling its capacity and making it one of the largest of its kind in the world.

As the only ISO/IEC 17025 accredited, secure micro diamond recovery facility in the Prairie provinces, SRC continues to support new exploration in Saskatchewan. This expansion allows mining companies to access the full range of geoanalytical services in close proximity to their operations, making it more convenient and economical to do business in Saskatchewan.

Overall, mineral exploration in Saskatchewan has increased more than 10-fold in the past five



SRC's diamond analysis facility.

years and a 15 per cent increase is expected this year. SRC has kept up with the growth of this industry, expanding its services as its clients move through the exploration process and have new needs.

Over the last five years, SRC's Geoanalytical Laboratories has tripled its kimberlite indicator minerals processing capacity and increased its micro diamond recovery capacity several times. Plans for a new dense media separation (DMS) plant are underway and there is already a waiting list of eager macro diamond clients.

Although established primarily to assist Saskatchewan clients, SRC has a growing worldwide reputation for independence and outstanding quality in its geoanalytical work. SRC's diamond labs achieved De Beers 'lab of choice' status for micro diamond extraction in 2005 and currently has clients from across Canada and 13 countries around the world. ■

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