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2017 ESAA PHOTO CONTEST FINALIST ANNOUNCED HELP US CHOOSE THE WINNERS

ESAA has selected six finalists for the ESAA Photo Contest but we need your help selecting the 1st, 2nd and 3rd place winners! Please click the link below to be directed to the voting site.

All voters will be entered into a draw to receive a canvas print of the 1st place photo! You do not need to be an ESAA member to vote, so pass the link on to your friends and family.

All three winning organizations will receive a canvas print of their photo and their photo will be displayed at *RemTech 2017*. Additional copies will be made and auctioned off at *RemTech 2017* with all proceeds going to charity.

VOTING WILL CLOSE ON SEPTEMBER 8th at 5:00PM. -> [VOTE NOW](#)

REMTECH 2017
October 11-13, 2017
Fairmont Banff Springs

Final Program Available
Starts in 5 Weeks - 85 Delegate Spots Remaining



RemTech 2017 starts in 5 weeks. Have you registered? Only 85 delegate spots are remaining. To register visit the [RemTech website](#) and click on the [Register Link](#). Current Delegate List - <http://www.esaa.org/remtech/agenda/delegate-list/>

RemTech 2017 Keynote Speakers Announced

ESAA is pleased to announce the following keynote speakers for RemTech 2017.

Opening Keynote

Port Hope Initiative

Craig Hebert, General Manager, Historic Waste Program
 Canadian Nuclear Laboratories (CNL)

Thursday Lunch Keynote

Celebrating Canada

Brian Keating, Going Wild

Friday, Closing Keynote
The Importance of Wetlands
Mac Stone, Photographer

RemTech 2017 Final Program Now Available

ESAA is pleased to announce that the *RemTech 2017* program is now available online. The program features 77 technical presentations, three keynotes and two networking receptions.

Topic Areas include: Assessment, In-Situ, Phytoremediation, Emerging Contaminants, Data Collection, Unique Sites, Perspectives from across the Country, Brownfields, Technology, Landfills, Lessons Learned, Laboratory, Decommissioning and much more.

You can check out full program at: www.esaa.org/remtech/agenda/

Thank you to all of our sponsors!

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Opening Reception: Major Drilling

Lanyards: Ivey International

Room Keys: Sublatus Earthworks and Environmental

Opening Keynote Breakfast: TRIUM Environmental

Charging Station: JSK Consulting

Friday Keynote Luncheon: Waste Connections of Canada

Artworks Reception: JSK Consulting * Maxxam Analytics * Trace Associates

Thursday Keynote Luncheon: GHD

Photo Booth: Trace Associates

Silent Auction: ClearStream Energy Services

Full event details available online at: www.esaa.org/remtech/

EDSON COMPANY, LANDOWNERS FACE PROVINCIAL CHARGES

The Alberta government has laid *Public Lands Act* and *Environmental Protection and Enhancement Act* charges against Jade Oilfield Maintenance Company Ltd. and the landowners of the property the company occupies in Yellowhead County.

Incident details

Jade Oilfield Maintenance Company Ltd. has been charged with five counts under the Public Lands Act relating to the unauthorized occupation and use of public lands and one charge under the Environmental Protection and Enhancement Act for continuing an activity without the required approval or registration. Similarly, Patrick Modeste Paul and Patricia Mary Anderson face five charges under the Public Lands Act.

The common charges under the Public Lands Act include:

- Occupying public lands without a disposition or authorization, an offence contrary to section 56(1)(d) of the act.
- Causing, permitting or suffering activities on public land that is likely to result in loss or damage to public land, contrary to section 54(1)(a.2) of the act.
- Causing, permitting or suffering the existence on public land of any structure or excavation of any kind that is undesirable or otherwise in contravention of the Public Lands Act, an offence contrary to section 54(1)(b) of the act.

Jade Oilfield also faces a single count of operating a pit without approval or registration, an offence contrary to section 61 of the Environmental Protection and Enhancement Act.

The next court appearance is set for Oct. 3, 2017 in Edson.

Alberta Environment and Parks focuses on education, prevention and enforcement to ensure all Albertans continue to enjoy a clean and healthy environment. When individuals or companies fail to comply with legislation, Environment and Parks has a range of options, depending on the offence, to ensure compliance with environmental regulations.

AER: PRAIRIE MINES & ROYALTY FINED

Calgary, Alberta (Sep 01, 2017)... Prairie Mines & Royalty ULC will pay \$ 109,250, including a \$95,000 fine and a \$14,250 provincial surcharge, after pleading guilty to one charge under the [Coal Conservation Act](#).

In a statement of facts available on the AER's [Compliance Dashboard](#), Prairie Mines & Royalty ULC, previously known as Coal Valley Resources Inc, agreed that it conducted mining operations at its Edson area coal mine that had not been approved by the regulator and that it failed to report an incident as soon as was practicable.

The Alberta Energy Regulator (AER) initially laid charges against Prairie Mines & Royalty ULC and Westmoreland Coal Company after a March 21, 2015, incident led to 3,300 m3 of material sliding from the mine's high wall to the pit bottom which partially buried a bulldozer. No injuries occurred as a result of the incident.

The AER was not notified of the incident until two days later on March 23, 2015, when the mine's engineering manager contacted the provincial reporting line.

The Alberta Energy Regulator ensures the safe, efficient, orderly, and environmentally responsible development of hydrocarbon resources over their entire life cycle. This includes allocating and conserving water resources, managing public lands, and protecting the environment while providing economic benefits for all Albertans.

TOWN OF PINCHER CREEK EXPRESSES UNEASE OVER INCINERATOR

(Source: Pincher Creek Echo) Councillors expressed their concerns and hesitations over the lack of assessments done in regards to the potential of the Landfill Society to install an incinerator at the regularly scheduled meeting of Town council on Aug. 28.

The basis of their concern was founded on the fact the landfill does not currently have an environmental impact assessment regarding the potential for the incinerator to affect air or water quality.

"I had a conversation with one of their representatives in Lethbridge," said councillor Doug Thornton. "The decision to not request an environmental impact assessment for this incinerator, was because at some time in the past ... there was an incinerator designed to burn biological waste at a hospital ... and it didn't require an environmental impact assessment, so why would they need one for the one in Cowley?"

"The reason, of course, is because in Cowley, we have 100 km/hr winds regularly and nobody has taken the wind conditions into consideration."

Thornton admitted that his concerns and opposition to the incinerator could disappear as long as an assessment stated it would not put noxious chemicals into the atmosphere.

Councillors Jim Litkowski and Duane Filipuzzi also expressed their reservations regarding the possibility of water contamination.

“I have a hard time wrapping my head around the fact that they monitor what we control what we drink down to the most minute point,” Filipuzzi said. “But we’re not monitoring or controlling what we put into the air or what we’re breathing? I’m really having a hard time wrapping my head around that one.”

Council made the decision to prepare a list of questions and concerns for the landfill by Sept. 11 and that a copy of their concerns be forwarded to Alberta Environment and Parks for review.

PROVINCIAL PLAN FLOATS BIG LAKE BOAT BAN

(Source: St. Albert Gazette) Should the province ban all boats from Big Lake? That’s one protective measure the province has floated as part of its proposed plan for Lois Hole Park, and you’ve got just three days left to let them know what you think of it.

Alberta Parks released its [draft management plan](#) for Lois Hole Centennial Provincial Park back in July. The 60-day public comment period for it wraps up Wednesday.

More than one hundred people came out to an open house on the plan at the Enjoy Centre last November.

The 133-page document lays out a 10-year vision of the park and outlines how parks officials will develop it, said Terry Krause, land and resource management co-ordinator with Alberta Parks.

“I always like to think of it like a mini-constitution telling you what to do.”

The plan emphasizes that the prime purpose of Lois Hole Park is conservation, noting that it protects “a unique and important wetland ecosystem and connects people to nature through education and low impact nature-based experiences” and serves as a model of how biodiversity and urban development can co-exist.

It also notes that the park is under threat from agriculture, pollution, homes, roads, invasive species, and park-goers.

The trick now is to figure out how to balance public access with nature protection, Krause said.

PROTECTIVE MEASURES

The plan calls for temporary, seasonal or longer-term closures of parts of the park to protect sensitive species or areas, and to restrict visitor access to designated trails. Off-highway vehicles would continue to be banned, and Alberta Parks would pursue a ban on motorboats under the Canada Shipping Act.

An [online survey](#) on the plan floats several ways the province could restrict park access. The park might not close any part of the park and instead rely on education, for example, or it might limit the type or number of boats allowed on Big Lake. It might also close Big Lake to “all forms of water-based recreation” from ice break-up to freeze-up.

That last option would be a pretty extreme step, Krause said.

“I’m not sure if Parks would even support it.”

Krause said that part of the survey was meant to test what steps the public would support when it came to ecological protection, and that he expected to see a lot of strong opinions on it. It would be years before these sorts of restrictions would be necessary, as the park didn’t have the density of users needed for them yet.

Dave Burkhart of the Big Lake Environment Support Society said he wasn’t wild about a lake ban. “I could see closures of certain areas for certain periods, but I certainly wouldn’t want to see a complete lake closure.”

FEEDBACK

Krause said the province hoped people would read the plan and comment on how well it balanced conservation and recreation.

BLESS members were glad the province had finally made a plan for Lois Hole Park, said Burkhart, who had been compiling the group's comments.

"It's gone for 12 years without a plan," he said, and that's restricted conservation and development efforts in the park.

Burkhart said BLESS was concerned that the plan wouldn't be backed by the necessary enforcement, however, and wanted an explicit ban on motorboats written into it.

City parks planner Margo Brenneis said she was glad this plan was being made, as it would help St. Albert with its own plans for this region as part of its rewrite of the Red Willow Park West master plan.

"People see this park as part of St. Albert," she said, and make frequent use of it.

Residents are asked to send comments to loishole.cpp@gov.ab.ca by Sept. 6. The draft plan and the online survey on it are available at <http://bit.ly/2evto2k>.

ENVIRONMENT MINISTERS DISCUSS CLIMATE CHANGE AND CLEAN AIR

Montréal, QC – October 3, 2016 – Federal, provincial and territorial environment ministers met today in Montréal to advance the development of a pan Canadian Framework on Clean Growth and Climate Change.

"We have a historic opportunity for a sustained transition to a low-carbon, clean growth and climate resilient economy. This includes substantial reductions of greenhouse gas emissions in all sectors coupled with investments in and measures to build resilience to the impacts of climate change," said David Heurtel, Québec's Minister of Sustainable Development, Environment and the Fight Against Climate Change, who hosted his colleagues at the annual meeting of CCME.

Last March, in the Vancouver Declaration, First Ministers agreed to develop a pan Canadian Framework on Clean Growth and Climate Change to achieve Canada's international commitments in the Paris Accord. They agreed to implement policies in support of meeting or exceeding Canada's 2030 target of a 30% reduction below 2005 levels of emissions.

First Ministers also committed to transitioning to a low carbon economy by adopting a broad range of domestic measures, including carbon-pricing mechanisms adapted to each province's and territory's specific circumstances, in particular the realities of the Indigenous peoples of Canada and Arctic and sub Arctic regions.

As part of this process, Ministers reviewed reports on carbon pricing mechanisms, specific mitigation opportunities, and adaptation and climate resilience prepared by three federal-provincial-territorial working groups. The reports of the working groups will be released by the end of October.

Based on the options presented by working groups, Ministers discussed collaborative actions and will provide their input to First Ministers on the pan Canadian Framework on Clean Growth and Climate Change. Environment Ministers recognized that the unique circumstances of the territories, including the high cost of living, challenges with food security, and emerging economies means that a range of different policy options for reducing emissions will be considered. First Ministers will reconvene this fall to conclude the framework.

Ministers met with representatives of the Assembly of First Nations, Inuit Tapiriit Kanatami, and the Métis National Council to discuss their ideas and to share perspectives about the opportunities and challenges as Canada moves to a stronger, more resilient, low-carbon economy. Ministers thanked these national Indigenous organizations for their continuing participation in the development of a pan Canadian framework and recognized the importance of continued ongoing collaboration as we move forward.

Ministers would like to thank Canadians who contributed their thoughts and advice to the working groups, noting that the engagement of citizens in developing a pan Canadian framework is essential, as climate change touches every industry and household in Canada.

"Our discussions today demonstrate our commitment to working together and joining forces to ensure a flexible, joint and complementary approach to fighting climate change based on the leadership, actions and specific circumstances

of each jurisdiction,” said Minister Heurtel. “This will allow us to make further progress on emissions reduction, resilience, and transition to a low-carbon economy, consistent with the commitments made in Paris.”

Ministers will continue to collaborate on several climate change projects through CCME, including developing:

- an approach to inventories and projections that will improve the consistency of greenhouse gas emissions tracking and reporting;
- tools to plan for changes in the frequency and intensity of droughts and floods; and
- guidance for sampling soils and groundwater at contaminated sites in permafrost.

As a part of the continuing implementation of the Air Quality Management System (AQMS), Ministers took action to reduce sulphur dioxide emissions. These emissions are linked to respiratory health problems, particularly for children and adults with asthma, and environmental impacts such as acid rain and smog.

Ministers announced new Canadian Ambient Air Quality Standards (CAAQS) for sulphur dioxide, that will drive the improvement of air quality across the country. These standards were developed through a collaborative process that included industry associations, non-governmental organizations, indigenous organizations and governments.

The AQMS is a comprehensive and harmonized approach to air quality management across Canada that considers all sources of air pollution. Québec supports the general objectives of the AQMS, but has already implemented its own regulation and is collaborating with jurisdictions on developing some elements of the system, notably air zones and airsheds.

At the conclusion of the meeting British Columbia Minister of Environment Mary Polak took over the Presidency of CCME from Minister Heurtel.

CCME is the primary minister-led intergovernmental forum for collective action on environmental issues of national and international concern. CCME is comprised of the environment ministers from the federal, provincial and territorial governments.

CONTROVERSIAL IDEA TO SAVE ENDANGERED CARIBOU

Source: CBC News) Canada's woodland caribou are in trouble. For decades the populations in Alberta and the mountains of BC have been shrinking drastically. The biggest problem is probably us. We've invaded and disturbed their habitat for logging, oil and gas. But the immediate problem is wolves. These fearsome predators have been taking caribou in numbers that are simply unsustainable. In an effort to give the caribou a break the Alberta and BC have been culling wolves. Killing hundreds of them.

It's been enormously controversial. And according to a new study - it may also be the wrong way to go.

- [Research Paper](#) in the journal *PeerJ*
- [Research summary](#) from *PeerJ*

According to a long-term research project by [Dr. Rob Serrouya](#), the Director of the [Caribou Monitoring Unit at the Alberta Biodiversity Monitoring Institute](#), and his colleagues, to save caribou don't shoot wolves - shoot moose. They've found that invasive moose and white-tailed deer - who do well in caribou habitat disturbed by humans - are supporting a larger than ordinary number of wolves. Dr. Serrouya says the caribou are just "bycatch" the wolves are taking when they have the opportunity. When moose were removed by sport-hunters, many wolves leave for richer areas, and caribou numbers can stabilize.

This interview has been edited for length and clarity.

Tim Caulfield: Why did you think it was a good idea to shoot moose to save caribou from wolves?

Rob Serrouya: Well we have to step back and look at the whole caribou problem across North America. When you remove trees with fire or logging you get more shrubs for about 30 to 50 years and those shrubs are what feed white tailed deer and moose - and both of those species are expanding in many areas. When you have the expansion of deer and moose, along come wolves and cougars and the caribou are essentially bycatch they're like incidental take.

TC: So the wolves are dragging in their predators to the world of the caribou.

RS: That's exactly right. So removing wolves on its own is just a Band-Aid. It's just treating a symptom not the cause. And that's been done a lot in Alberta, and just very recently a little bit in British Columbia.

TC: How did you manage to test this idea.

RS: So we noticed that there was a lot of moose and that the government was going to reduce them a little bit to help with tree plantations in that kind of thing. So we said OK let's turn this into an experiment to maximize our learning. So we said there is the treatment area north of Revelstoke and then there'll be an adjacent reference or control area where moose are not reduced. So that's how the stage was set.

TC: So what strategy did you use to remove the moose

RS: It was simply an increase in sport hunting permits particularly for female moose but also for trophy moose. All these animals were used for food to feed people and that basically generated income from the province by reducing moose to historic levels levels that were existing prior to broad scale logging.

TC: So what was the result. What did you find from this big project.

RS: Sure enough the moose were reduced in the treatment area and they didn't decline in the control or reference area. Then we noticed that wolf numbers were declining. We noticed that in response to the moose reduction the wolves in the treatment area dispersed. They left the area which resulted in a decline in numbers. And we also noticed that fewer wolf babies were being produced in that area.

And then we of course monitored caribou and that was the \$64000 question. So we found that adult survival increased in the largest herd in the treatment area. And those numbers have now been stable for 14 years which I would argue out of about 65 herds in B.C. in Alberta is the most stable herd.

TOXIC WASTE SITES FLOODED IN HOUSTON AREA

(Source: Associated Press) HIGHLANDS, Texas (AP) — As Dwight Chandler sipped beer and swept out the thick muck caked inside his devastated home, he worried whether Harvey's floodwaters had also washed in pollution from the old acid pit just a couple blocks away.

Long a center of the nation's petrochemical industry, the Houston metro area has more than a dozen Superfund sites, designated by the Environmental Protection Agency as being among America's most intensely contaminated places. Many are now flooded, with the risk that waters were stirring dangerous sediment.

The [Highlands Acid Pit](#) site near Chandler's home was filled in the 1950s with toxic sludge and sulfuric acid from oil and gas operations. Though 22,000 cubic yards of hazardous waste and soil were excavated from the acid pits in the 1980s, the site is still considered a potential threat to groundwater, and the EPA maintains monitoring wells there.

When he was growing up in Highlands, Chandler, now 62, said he and his friends used to swim in the by-then abandoned pit.

"My daddy talks about having bird dogs down there to run and the acid would eat the pads off their feet," he recounted on Thursday. "We didn't know any better."

The Associated Press surveyed seven Superfund sites in and around Houston during the flooding. All had been inundated with water, in some cases many feet deep.

On Saturday, hours after the AP published its first report, the EPA said it had reviewed aerial imagery confirming that 13 of the 41 Superfund sites in Texas were flooded by Harvey and were “experiencing possible damage” due to the storm.

The statement confirmed the AP’s reporting that the EPA had not yet been able to physically visit the Houston-area sites, saying the sites had “not been accessible by response personnel.” EPA staff had checked on two Superfund sites in Corpus Christi on Thursday and found no significant damage.

AP journalists used a boat to document the condition of one flooded Houston-area Superfund site, but accessed others with a vehicle or on foot. The EPA did not respond to questions about why its personnel had not yet been able to do so.

“Teams are in place to investigate possible damage to these sites as soon flood waters recede, and personnel are able to safely access the sites,” the EPA statement said.

Houston Mayor Sylvester Turner, speaking with reporters at a news conference on Saturday after the AP report was published, said he wants the EPA “in town to address the situation.”

Turner said he didn’t know about the potential environmental concerns soon enough to discuss them with President Donald Trump.

“Now we’re turning our attention to that,” he said. “It is always a concern. The environment is very concerning, and we’ll get right on top of it.”

At the Highlands Acid Pit on Thursday, the Keep Out sign on the barbed-wire fence encircling the 3.3-acre site barely peeked above the churning water from the nearby San Jacinto River.

A fishing bobber was caught in the chain link, and the air smelled bitter. A rusted incinerator sat just behind the fence, poking out of the murky soup.

Across the road at what appeared to be a more recently operational plant, a pair of tall white tanks had tipped over into a heap of twisted steel. It was not immediately clear what, if anything, might have been inside them when the storm hit.

EPA Administrator Scott Pruitt has called cleaning up Superfund sites a top priority, even as he has taken steps to roll back or delay rules aimed at preventing air and water pollution. Trump’s proposed 2018 budget seeks to cut money for the Superfund program by 30 percent, though congressional Republicans are likely to approve a less severe reduction.

Like Trump, Pruitt has expressed skepticism about the predictions of climate scientists that warmer air and seas will produce stronger, more drenching storms.

Under the Obama administration, the EPA conducted a nationwide assessment of the increased threat to Superfund sites posed by climate change, including rising sea levels and stronger hurricanes. Of the more than 1,600 sites reviewed as part of the 2012 study, 521 were determined to be in 1-in-100 year and 1-in-500 year flood zones. Nearly 50 sites in coastal areas could also be vulnerable to rising sea levels.

The threats to human health and wildlife from rising waters that inundate Superfund sites vary widely depending on the specific contaminants and the concentrations involved. The EPA report specifically noted the risk that floodwaters might carry away and spread toxic materials over a wider area.

The report listed two dozen Superfund sites determined to be especially vulnerable to flooding and sea-level rise. The only one in Texas, the Bailey Waste Disposal site south of Beaumont, is on a marshy island along the Neches River. The National Weather Service said the Neches was expected to crest on Saturday at more than 21 feet above flood stage — 8 feet higher than the prior record.

In Crosby, across the San Jacinto River from Houston, a small working-class neighborhood sits between two Superfund sites, French LTD and the Sikes Disposal Pits.

The area was wrecked by Harvey's floods. Only a single house from among the roughly dozen lining Hickory Lane was still standing.

After the water receded on Friday, a sinkhole the size of a swimming pool had opened up and swallowed two cars. The acrid smell of creosote filled the air.

Rafael Casas' family had owned a house there for two decades, adjacent to the French LTD site. He said he was never told about the pollution risk until it came up in an informal conversation with a police officer who grew up nearby. Most of the homes had groundwater wells, but Casas said his family had switched to bottled water.

"You never know what happens with the pollution under the ground," said Casas, 32. "It filters into the water system."

The water had receded by Saturday at Brio Refining Inc. and Dixie Oil Processors, a pair of neighboring Superfund sites about 20 miles southeast of downtown Houston in Friendswood. The road was coated in a layer of silt. Mud Gully Stream, which bisects the two sites, was full and flowing with muddy water.

Both sites were capped with a liner and soil as part of EPA-supervised cleanup efforts aimed at preventing the contamination from spreading off the low-lying sites during floods. Parts of the Brio site were elevated by 8 feet.

John Danna, the manager hired by the companies to oversee the sites, said in a phone interview that he went there after the storm and saw no signs of erosion. He said he didn't know how high the flooding got in Harvey's wake and that no testing of the water still draining from the area had been conducted. EPA staff are expected to visit in the next week, he said.

A security guard at the Patrick Bayou Superfund site, just off the Houston Ship Channel in Deer Park, said Saturday that flooding came hundreds of feet inland during the storm. The water has since receded back into the bayou, where past testing has shown the sediments contain pesticides, toxic heavy metals and PCBs. The site, surrounded by active petrochemical facilities, is still awaiting a final plan for cleanup.

The San Jacinto River Waste Pits Superfund site was completely covered with floodwaters when an AP reporter saw it Thursday. According to its website, the EPA was set to make a final decision this year about a proposed \$97 million cleanup effort to remove toxic waste from a paper mill that operated there in the 1960s.

The flow from the raging river washing over the toxic site was so intense it damaged an adjacent section of the Interstate 10 bridge, which has been closed to traffic due to concerns it might collapse.

There was no way to immediately assess how much contaminated soil from the site might have been washed away. According to an EPA survey from last year, soil from the former waste pits contains dioxins and other long-lasting toxins linked to birth defects and cancer.

The EPA said Saturday the San Jacinto Waste Pits site is covered by a temporary "armored cap," a fabric covering anchored with rocks designed to prevent contaminated sediment from migrating down river.

McGinnes Industrial Maintenance Corp., one of the companies responsible for the site, said in a statement Saturday that its contractors reported that "visible portions of the cap indicated the waste beneath remained in place following the storm." Ken Haldin, a public relations consultant representing the company, said he did not know how much of the 34-acre site was above water at the time of the inspection.

According to an EPA review last year, the cap has required extensive repairs on at least six occasions since it was installed in 2011, with large sections becoming displaced or going missing.

The EPA said its personnel planned to go to the site by boat on Monday.

Kara Cook-Schultz, who studies Superfund sites for the advocacy group TexPIRG, said environmentalists have warned for years about the potential for flooding to inundate Texas Superfund sites, particularly the San Jacinto Waste Pits.

“If floodwaters have spread the chemicals in the waste pits, then dangerous chemicals like dioxin could be spread around the wider Houston area,” Cook-Schultz said. “Superfund sites are known to be the most dangerous places in the country, and they should have been properly protected against flooding.”

PLASTIC FIBRES FOUND IN TAP WATER AROUND THE WORLD, STUDY REVEALS

(Source: The Guardian) Microplastic contamination has been found in tap water in countries around the world, leading to calls from scientists for urgent research on the implications for health. Scores of tap water samples from more than a dozen nations were analysed by scientists for an [investigation by Orb Media](#), who shared the findings with the Guardian. Overall, 83% of the samples were contaminated with plastic fibres.

Analysis We are living on a plastic planet. What does it mean for our health? New studies reveal that tiny plastic fibres are everywhere, not just in our oceans but on land too. Now we urgently need to find out how they enter our food, air and tap water and what the effects are on all of us

The US had the highest contamination rate, at 94%, with plastic fibres found in tap water sampled at sites including Congress buildings, the US Environmental Protection Agency’s headquarters, and Trump Tower in New York. Lebanon and India had the next highest rates.

European nations including the UK, Germany and France had the lowest contamination rate, but this was still 72%. The average number of fibres found in each 500ml sample ranged from 4.8 in the US to 1.9 in [Europe](#).

The new analyses indicate the ubiquitous extent of [microplastic contamination](#) in the global environment. Previous work has been largely focused on plastic pollution in the oceans, which suggests people are eating microplastics via contaminated seafood.

“We have enough data from looking at wildlife, and the impacts that it’s having on wildlife, to be concerned,” said Dr Sherri Mason, a microplastic expert at the State University of New York in Fredonia, who supervised the analyses for Orb. “If it’s impacting [wildlife], then how do we think that it’s not going to somehow impact us?”

A magnified image of clothing microfibrils from washing machine effluent. One study found that a fleece jacket can shed as many as 250,000 fibres per wash. Photograph: Courtesy of Rozalia Project

A separate small study in the Republic of Ireland released in June also found microplastic contamination in a handful of tap water and well samples. “We don’t know what the [health] impact is and for that reason we should follow the precautionary principle and put enough effort into it now, immediately, so we can find out what the real risks are,” said Dr Anne Marie Mahon at the Galway-Mayo Institute of Technology, who conducted the research.

Mahon said there were two principal concerns: very small plastic particles and the chemicals or pathogens that microplastics can harbour. “If the fibres are there, it is possible that the nanoparticles are there too that we can’t measure,” she said. “Once they are in the nanometre range they can really penetrate a cell and that means they can penetrate organs, and that would be worrying.” The Orb analyses caught particles of more than 2.5 microns in size, 2,500 times bigger than a nanometre.

Microplastics can attract bacteria found in sewage, Mahon said: “Some studies have shown there are more harmful pathogens on microplastics downstream of wastewater treatment plants.”

Microplastics are also known to contain and absorb toxic chemicals and research on wild animals shows they are released in the body. Prof Richard Thompson, at Plymouth University, UK, told Orb: “It became clear very early on that the plastic would release those chemicals and that actually, the conditions in the gut would facilitate really quite rapid release.” His research has shown microplastics are found in a third of fish caught in the UK.

The scale of global microplastic contamination is only starting to become clear, with studies in Germany finding [fibres and fragments in all of the 24 beer brands](#) they tested, as well as in [honey and sugar](#). In Paris in 2015, researchers discovered [microplastic falling from the air](#), which they estimated deposits three to 10 tonnes of fibres on the city each year, and that it was [also present in the air in people’s homes](#).

This research led Frank Kelly, professor of environmental health at King’s College London, to [tell a UK parliamentary inquiry](#) in 2016: “If we breathe them in they could potentially deliver chemicals to the lower parts of our lungs and

maybe even across into our circulation.” Having seen the Orb data, Kelly told the Guardian that research is urgently needed to determine whether ingesting plastic particles is a health risk.

The new research tested 159 samples using a standard technique to eliminate contamination from other sources and was performed at the University of Minnesota School of Public [Health](#). The samples came from across the world, including from Uganda, Ecuador and Indonesia.

How microplastics end up in drinking water is for now a mystery, but the atmosphere is one obvious source, with fibres shed by the everyday wear and tear of clothes and carpets. Tumble dryers are another potential source, with almost 80% of US households having dryers that usually vent to the open air.

“We really think that the lakes [and other water bodies] can be contaminated by cumulative atmospheric inputs,” said Johnny Gasperi, at the University Paris-Est Créteil, who did the Paris studies. “What we observed in Paris tends to demonstrate that a huge amount of fibres are present in atmospheric fallout.”

Plastic fibres may also be flushed into water systems, with a recent study finding that each [cycle of a washing machine could release 700,000 fibres](#) into the environment. Rains could also sweep up microplastic pollution, which could explain why the household wells used in Indonesia were found to be contaminated.

In Beirut, Lebanon, the water supply comes from natural springs but 94% of the samples were contaminated. “This research only scratches the surface, but it seems to be a very itchy one,” said Hussam Hawwa, at the environmental consultancy [Difaf](#), which collected samples for Orb.

This planktonic arrow worm, *Sagitta setosa*, has eaten a blue plastic fibre about 3mm long. Plankton support the entire marine food chain. Photograph: Richard Kirby/Courtesy of Orb Media

Current standard water treatment systems do not filter out all of the microplastics, Mahon said: “There is nowhere really where you can say these are being trapped 100%. In terms of fibres, the diameter is 10 microns across and it would be very unusual to find that level of filtration in our drinking water systems.” Bottled water may not provide a microplastic-free alternative to tapwater, as they were also found in a few samples of commercial bottled water tested in the US for Orb.

Almost 300m tonnes of plastic is produced each year and, with just 20% recycled or incinerated, much of it ends up littering the air, land and sea. A [report in July](#) found 8.3bn tonnes of plastic has been produced since the 1950s, with the researchers warning that plastic waste has become ubiquitous in the environment.

“We are increasingly smothering ecosystems in plastic and I am very worried that there may be all kinds of unintended, adverse consequences that we will only find out about once it is too late,” said Prof Roland Geyer, from the University of California and Santa Barbara, who led the study.

Mahon said the new tap water analyses raise a red flag, but that more work is needed to replicate the results, find the sources of contamination and evaluate the possible health impacts.

She said plastics are very useful, but that management of the waste must be drastically improved: “We need plastics in our lives, but it is us that is doing the damage by discarding them in very careless ways.”

REMEDIAION TECHNOLOGY NEWS AND RESOURCES

(The following are selected items from the US EPA's Tech Direct - <http://clu-in.org/techdirect/>)

Upcoming Live Internet Seminars

ITRC Remedy Selection for Contaminated Sediments - September 14, 2017, 1:00PM-3:15PM EDT (17:00-19:15 GMT). ITRC developed the technical and regulatory guidance, Remedy Selection for Contaminated Sediments (CS-2, 2014), to assist decision-makers in identifying which contaminated sediment management technology is most

favorable based on an evaluation of site specific physical, sediment, contaminant, and land and waterway use characteristics. The document provides a remedial selection framework to help identify favorable technologies, and identifies additional factors (feasibility, cost, stakeholder concerns, and others) that need to be considered as part of the remedy selection process. This ITRC training course supports participants with applying the technical and regulatory guidance as a tool to overcome the remedial challenges posed by contaminated sediment sites. Participants learn how to: identify site-specific characteristics and data needed for site decision making, evaluate potential technologies based on site information, and select the most favorable contaminant management technology for their site. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

ITRC Integrated DNAPL Site Strategy - September 19, 2017, 1:00PM-3:15PM EDT (17:00-19:15 GMT). The ITRC Integrated Dense Nonaqueous Phase Liquid Site Strategy (IDSS-1, 2011) technical and regulatory guidance document will assist site managers in development of an integrated site remedial strategy. This course highlights five important features of an IDSS including: a conceptual site model (CSM) that is based on reliable characterization and an understanding of the subsurface conditions that control contaminant transport, reactivity, and distribution; remedial objectives and performance metrics that are clear, concise, and measurable; treatment technologies applied to optimize performance and take advantage of potential synergistic effects; monitoring based on interim and final cleanup objectives, the selected treatment technology and approach, and remedial performance goals; and reevaluating the strategy repeatedly and even modifying the approach when objectives are not being met or when alternative methods offer similar or better outcomes at lower cost. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

ERTP Presents?Soil Sampling and Analysis for Volatile Organic Compounds (VOCs) - September 21, 2017, 1:00PM-2:00PM EDT (17:00-18:00 GMT). Careful there! Precise characterization of volatile organic compounds (VOCs) in soil is often critical since decisions for remediation are based on analytical measurement. Unfortunately, the acts of collecting and storing soil can subject soils to numerous variables that can alter VOC concentrations. These variables may enhance volatilization, biodegradation, and loss of VOCs in the sample. This webinar will show why proper sample handling and preparation methods are key to collecting high-quality soil samples for VOCs. In this webinar we will explore the properties of VOCs, soil sampling methodologies, collection devices, VOC laboratory analyses, and other considerations. During the webinar, we will further discuss: the collection of high-quality soil samples for VOCs; best practices for sampling techniques to minimize the loss of VOCs; the advantages and disadvantages of soil sampling devices such as Encore and TerraCore samplers. The intended audience for the Soil Sampling and Analysis for VOCs webinar are state and federal regulators, project managers, and consultant personnel responsible for and/or directly involved in developing, identifying, or applying soil sampling approaches at their sites. For more information and to register, see <http://clu-in.org/live>.

ITRC Integrated DNAPL Site Characterization - September 26, 2017, 1:00PM-3:15PM EDT (17:00-19:15 GMT). The Integrated DNAPL Site Characterization Team has synthesized the knowledge about dense nonaqueous phase liquid (DNAPL) site characterization and remediation acquired over the past several decades, and has integrated that information into a new document, Integrated DNAPL Site Characterization and Tools Selection (ISC-1, 2015). This guidance is a resource to inform regulators, responsible parties, other problem holders, consultants, community stakeholders, and other interested parties of the critical concepts related to characterization approaches and tools for collecting subsurface data at DNAPL sites. After this associated training, participants will be able to use the guidance to develop and support an integrated approach to DNAPL site characterization, including: identify what site conditions must be considered when developing an informative DNAPL conceptual site model (CSM); define an objectives-based DNAPL characterization strategy; understand what tools and resources are available to improve the identification, collection, and evaluation of appropriate site characterization data; and navigate the DNAPL characterization tools table and select appropriate technologies to fill site-specific data gaps. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

New Documents and Web Resources

Superfund Research Program (SRP) Research Briefs. To get monthly updates on research advances from the SRP you can subscribe to their Research Brief mailing list at <https://list.nih.gov/cgi-bin/wa.exe?SUBED1=SRP-BRIEF&A=1>.

Technology Innovation News Survey Corner. The Technology Innovation News Survey contains market/commercialization information; reports on demonstrations, feasibility studies and research; and other news relevant to the hazardous waste community interested in technology development. Recent issues, complete archives, and subscription information is available at <https://clu-in.org/products/tins/>. The following resources were included in recent issues:

- Technical Report for the Demonstration of Wide Area Radiological Decontamination and Mitigation Technologies for Building Structures and Vehicles
- Use and Potential Impacts of AFFF Containing PFASs at Airports

- Protocol for the Sampling of Water as a Core Matrix in the UNEP/GEF GMP2 Projects for the Analysis of PFOS, Component 2: Abiotic Samples
- Current and Emerging Post-Fukushima Technologies, and Techniques, and Practices for Wide Area Radiological Survey, Remediation, and Waste Management
- Permeable Reactive Barrier Pilot Test Work Plan, Grenada Manufacturing, LLC, Grenada, Mississippi
- Demonstration and Validation of a Portable Raman Sensor for In-Situ Detection and Monitoring of Perchlorate (ClO₄⁻)
- Solar-Powered Remediation and pH Control: ESTCP Cost and Performance Report
- CHROTRAN: A Mathematical and Computational Model for In Situ Heavy Metal Remediation in Heterogeneous Aquifers
- Integrating Model Abstraction into Subsurface Monitoring Strategies
- Modeling of Radionuclide Transport in Freshwater Systems Associated with Nuclear Power Plants
- Remedy and Recontamination Assessment Array
- PAH Interactions with Soil and Effects on Bioaccessibility and Bioavailability to Humans
- Analysis of the Transport and Fate of Metals Released from the Gold King Mine in the Animas and San Juan Rivers
- Planning for Response Actions at Abandoned Mines with Underground Workings: Best Practices for Preventing Sudden, Uncontrolled Fluid Mining Waste Releases
- PCB Facility Approval Streamlining Toolbox (FAST): A Framework for Streamlining PCB Site Cleanup Approvals
- Manual to Identify Sources of Fluvial Sediment

Petroleum Hydrocarbons in Groundwater: Guidance on Assessing Petroleum Hydrocarbons using Existing Hydrogeological Risk Assessment Methodologies (2017). This document provides guidance on assessing the risks to groundwater and surface water from petroleum hydrocarbon compounds. It complements the Environment Agency's guidance given in the Remedial Targets Methodology and should be read alongside that report and Groundwater Protection: Principles and Practice (GP3, Environment Agency, 2013). The objective of this guidance is to establish an effective, reliable and consistent approach to petroleum hydrocarbon assessment within hydrogeological risk assessments. This guidance has been prepared by a steering group led by Shell Global Solutions and has kindly been reviewed and supported by the Environment Agency, Natural Resources Wales and the Northern Ireland Environment Agency, an agency within the Department of Agriculture, Environment and Rural Affairs. View or download at www.claire.co.uk/phg .

New ESAA Member

ESAA's Board of Directors and staff would like to welcome the following new member:

Full Member:



BrettYoung Seeds Ltd
 RR#4, 49469 Range Road 263
 Calmar, AB T0C0V0
Phone: (587) 335-8278
Website: www.brettyoung.ca

Corey Mandrusiak, Regional Account Manager - Alberta Reclamation
e-mail: corey.mandrusiak@brettyoung.ca

Profile:

Turf seed, native (reclamation) seed and erosion control products supplier, also including consulting services. Distribution throughout Western Canada and including Ontario.

UPCOMING EVENTS



CLRA NATIONAL AGM, CONFERENCE AND TOURS

This year, Alberta has the pleasure of hosting the CLRA National AGM and Conference, and we're combining it with the fall tours that we typically run. The AGM, Conference and Tours are being held in Fort McMurray on September 18-21, 2017. Here is a link to additional information: <http://www.clra.ca/>

NOMINATIONS ARE OPEN!

The Brownie Awards recognize the builders, innovators and visionaries who are dedicated to the rehabilitation of brownfield sites that were once contaminated, under-utilized and undeveloped into productive residential and commercial projects that contribute to the growth of healthy communities across Canada.



The Brownies are open to everyone in the brownfield community.

The Brownies are designed to recognize excellence in projects or programs. Any organization involved in brownfield redevelopment in Canada can submit a nomination – municipalities, utilities, developers, consultants, property owners, non-governmental organizations, regulators, etc. – either on behalf of someone else or for its own work.

If you have completed, or are working on, a project that fits in one of the award categories below, please consider submitting a nomination. **NOMINATIONS CLOSE FRIDAY, SEPTEMBER 15.**

[NOMINATE NOW!](#)



CALPUFF/CALMET AIR QUALITY DISPERSION MODELLING COURSE

Please mark your calendars for this three-day course coming up this November

Dates Monday, November 6 to Wednesday, November 8, 2017
Venue University of Calgary, Downtown Campus (#906, 8 Ave SW)

This three-day CALPUFF/CALMET training course is designed for permitting staff, regulators, consultants, engineers, and managers with ambient air quality management responsibilities. The course will consist of technical lectures with relevant hands-on exercises.

For more information, visit the CPANS website (<http://cpans.org/>) or click [here](#) to **register by October 31**. There are a total of 30 seats available in the course.

Cost

\$1,100 CAD for A&WMA Members

\$1,400 CAD for Non-Members

Instructors

Irene Lee and Christopher DesAutels, Exponent Managing Scientists

Ms. Irene Lee has an M. S. in atmospheric science and has 12 years of experience in meteorological and air quality modeling. She has performed numerous air quality impact studies worldwide, including in the U.S., Canada, Saudi Arabia, Iceland, and Trinidad, using both the AERMOD and CALPUFF modeling systems, from data collection and preparation through to model execution and post-processing analyses. Ms. Lee is also a primary contributor to the CALPUFF modeling system having developed numerous software packages, including the new Visual Basic CALApps graphical user interface (GUI) and Fortran processors. She developed an automated forecast system using the CALPUFF modeling system that included designing a GUI to allow users to view automated forecast results and generate new scenarios on the fly. Features included interactive time-series plots, source contribution tables, and real-time local weather forecasts. She has co-taught CALPUFF courses throughout the world, including the U.S., Canada, and Australia.

Mr. Christopher DesAutels has nearly 20 years of experience simulating the transport of air pollutants and conducting air quality modeling studies. He is active in applying air dispersion models, including AERMOD, CALPUFF, Computational Fluid Dynamics (CFD), and dense gas models, to complex dispersion problems in support for both regulatory permitting applications and litigation. As the current lead scientist and software developer for the CALPUFF model he coordinates enhancements and bug fixes to the model code. Recent development work includes the implementation of a new CALPUFF source type in order to model aerial spraying, and linking CALPUFF with the agricultural spray model AGDISP. Mr. DesAutels co-taught a one-day CALPUFF course at the 2015 A&WMA annual conference.

JANUARY 2018 ALBERTA ENVIRONMENT AND CLEAN TECHNOLOGY MISSION TO CHINA AND THAILAND

The Government of Alberta invites you to *participate* in the “**January 2018 Alberta Environment and Clean Technology Mission to China and Thailand**”

You will have the opportunity to showcase your business at a series of trade promotion seminars in the cities of Hangzhou, Chengdu, and Bangkok. This seminar series will connect Alberta participants with prospective buyers, distributors, and business partners, as well as government and academic organizations, to promote Alberta's businesses. Alberta participants will focus on the priority sectors of Environment and Clean Technology. China and Thailand present a wide range of business opportunities in the Environment and Clean Technology sector including air, waste-to-energy, water and waste-water treatment, soil remediation, and various environmental services in the process control.

Companies not falling within these sectors will not be able to participate in the mission.

Participation Fee:

- \$500 CAD per company for China portion and/or
- \$250 CAD per company for Thailand portion
- The participation fee is non-refundable and includes up to 2 persons per company. The fee will contribute to covering a portion of the planning and hosting expenses for the networking sessions and seminars. Additional participants will be charged \$100 per city.
- Mission participants will be responsible for all travel costs, including accommodations and meals.

Financial Support:

Eligible Alberta SME's may benefit from financial support from the Alberta Export Expansion Package – SME Export Support Fund for items including flight and hotel costs. SME should apply

<https://www.alberta.ca/export-support-fund.aspx>

The following services will be provided:

- Pre-mission workshops;
- Printing of an Alberta company profile booklet (English/Chinese for the China portion, English version for the Thailand portion)
- In-market briefing sessions;
- Trade and investment seminars that will showcase your product or service;
- Facilitated networking sessions to encourage B2B meetings; and
- Optional site visits.

Please indicate your interest in the China and/or Thailand program by **noon on Friday, September 29th, 2017.**

Jordan Speakman, MBA

Manager – Energy and Clean Technology
Trade and Investment: China and Hong Kong
Alberta Economic Development and Trade
12th Floor - Commerce Place
10155 - 102 Street
Edmonton, AB
T5J 4G8

Phone: [\(780\)427-6386](tel:7804276386)

E-mail: jordan.speakman@gov.ab.ca

Industry Positions Openings

For more information visit ESAA's Job Board under the news section of www.esaa.org

Account Manager

Term: Full-Time

Number of Positions: 1

Application Deadline: September 8, 2017

Job Start Date: October 2017

Job Location: Alberta



Qualifications:

- Bachelors Degree in related sciences (chemistry, engineering, environmental sciences)
- Minimum 5 year of industry related experience in technical sales
- ABOVE AVERAGE ACHIEVEMENT IN SALES AND TERRITORY MANAGEMENT
- Understanding in Phase I, II & III environmental site assessments and remediation of contaminated sites report
- Strong knowledge of provincial government regulations, national guidelines and various other industry standards
- Ability to thrive in a fast-paced, multi-task environment, and meet demanding client deadlines
- Critical thinking and problem-solving ability
- Ability to troubleshoot technical and logistical issue
- Strong written and verbal communication skills
- Strong client interfacing and customer service skills
- Self-motivated with a dynamic and outgoing Personality
- Be Part and interact positively with the team

- Holds a valid class 5 driver's license with no restrictions

Responsibilities:

- Act in a Professional and Safe manner to ensure Highest Safety Record for Chemco, its Customers and Suppliers
- Maintain and Grow actual Western Canada Chemco Technological Package and Customer base in their respective industrial segment
- Contribute to overall business development
- Prepare and Present practical, cost-effective and scientifically sound solutions to satisfy the needs of our clients
- Providing technical direction to a team of remediation engineers and scientists with the help of Chemco technological team
- Evaluate warehousing requirement and Audit selected location,
- Evaluate distribution network and carriers to serve Western Canada Market
- Manage local inventories to cope with customer and project demand
- Customer/Supplier Order Management with Chemco order desk
- Budget creation and adherence, time management, cost/profitability tracking,
- Assign, collect and coordinate appropriate project resources (i.e. products, equipment, tools, documentation, people etc.)
- Organize and conduct project meetings with customer and suppliers
- Attend and Present at Technological Conference and Tradeshow
- Liaise with clients and other potentially involved stakeholders, including regulators
- Liaise with clients to ensure needs, goals and objectives addressed and met
- Foster and maintain long term client relationships

About Chemco

Chemco Inc. is a Canadian Chemical Manufacturer and Distributor providing Products and Services for in situ and ex situ Soil and Groundwater Remediation. Our technology offering in this field covers chemical oxidation and reduction technologies, soil washing processes and enhanced bioremediation techniques. We are also active in supplying Potable, Waste and Industrial, Process Water Treatment Solutions, Mud Drilling Additives and Aircraft De-icing Fluids. We support these products and technologies through customer training, technical & economical Design Studies and extended Laboratory Services for bench scale technological validation. Our services also include supply chain logistics, equipment selection and procurement, injection design, chemical storage solutions and health and safety training.

Our client base includes environmental consultants and contractors, government and cities, and many industrial sectors: upstream and downstream oil and gas; mining; food, agriculture, manufacturing, transportation, landfills. We are present across Canada with a network of warehouses ready to serve our customers.

How To Apply: For more information about Chemco Inc. and this opportunity, please communicate with Jean Paré at Chemco by phone at 418-953-3480. To apply directly for this opportunity, please e-mail (jean.pare@chemco-inc.com) your cover letter and resume (in one file), stating the job title in the subject line.

CHEMCO INC.

124 HAMBOURG
SAINT AUGUSTIN DE DESMAURES, Quebec G3A 2N4

Website: <http://www.chemco-inc.com/home>

Phone: (418) 953-3480

Fax: (418) 878-5323

Contact: JEAN PARE

Email: jean.pare@chemco-inc.com

Phone: (418) 953-3480

Biologist – Intermediate / Senior



Term: Full-Time

Number of Positions: 1

Application Deadline: September 8, 2017

Job Start Date: ASAP

Job Location: Regina

REGINA, SK

WSP is one of the world's leading professional engineering services firms. Every day our more than 34,000 experts work to restore the natural environment and transform the built environment.

In Canada, our 8000+ people are involved in everything from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, from finding new ways to extract essential resources to developing renewable power sources for the future.

The excellence we bring to our work and to our workplace has been recognized far and wide. We're a Forbes Top Employer in Canada, one of the Top 100 Sustainable Companies in the World (and among the Top 10 in Canada), and we earned Platinum Elite Recognition through our participation in more than half of Canada's Top 100 Infrastructure Projects.

At **WSP**, we're proud, professional and passionate people. Join us.

POSITION DESCRIPTION

WSP is looking for an experienced Intermediate/Sr. Biologist to join our Environmental team in Regina, Saskatchewan.

This role will blend field and office duties and will require some travel within Western Canada for short duration trips and assignments. Key responsibilities will include project management but will include field surveys (aquatic, terrestrial wildlife including migratory birds, depending on technical background), desk-top environmental screening, coordination and execution of provincial environmental permitting, Environmental Impact Assessments (EIA), Environmental Protection Planning, and technical submissions. Scope of work will include preparation of reports and assisting with proposals. The ideal candidate will have their Bachelor's Degree or Master's Degree in an Environmental Science such as Biology or Ecology, as well as a minimum of 10 years' experience working in the consulting industry or a similar role.

Responsibilities

- Manage projects and clients from proposal to final deliverables, on time and on budget;
- Design and implement project/study work plans
- Analyze, evaluate and interpret data while providing results within the scope and objective(s) of the specific project;
- Coordinate and complete environmental assessments (water quality, wetlands, vegetation, habitat, wildlife, aquatic)
- Prepare and review technical reports, field work plans and associated documents from peers and junior staff;
- Act as a mentor to junior staff, including on-site training and technical resource provisions;
- Provide technical and professional resources to WSP groups on issues associated with natural sciences;
- Interact with clients and regulatory agencies;
- Develop new business opportunities and enhance client relationships in both the public and private sectors.

QUALIFICATIONS

- Bachelor's Degree in Environmental Science, Biology or Ecology;
- A minimum of 10 years' demonstrated experience;
- Superior knowledge of provincial and federal environmental acts, regulations and policy;

- Superior level knowledge and operational experience with provincial and federal Environmental Impact Assessments and Environmental Assessments including CEA 2012 S. 67 and NEB review and approvals;
- Proven project management experience in natural sciences;
- Excellent communication and written skills with a demonstrated ability to write detailed technical reports and communicate effectively with clients and colleagues;
- Proficient with MS Office Suite and ARC GIS;
- Ability to function in a team environment with representatives from a wide array of disciplines is essential;
- Valid Driver' License.

Offers of employment for safety-sensitive positions involving fieldwork are contingent upon candidates being able to perform key physical tasks of the job as described in the job posting and interview. This may include the ability to work in a variety of environmental conditions, such as remote or isolated areas, working alone, and in inclement weather (within safe and reasonable limits).

To learn more about our firm and the projects we have been involved in, please visit our World of Possibilities website listed below.

<http://www.wsp-pb.com/en/WSP-Canada/Careers/Join-Our-Team/World-of-Possibilities/>

WSP welcomes and encourages applications from people with disabilities. Accommodations are available on request for candidates taking part in all aspects of the selection process.

WSP is committed to the principles of employment equity. Only the candidates selected will be contacted.

Application Details: To apply for this position, please refer to the WSP Canada website at:
<http://chj.tbe.taleo.net/chj05/ats/careers/requisition.jsp?org=MMM&cws=51&rid=6726>



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ESAA
now!
visit www.esaa.org
for more information