

Weekly NEWS



An Information Service for Alberta's Environment Industry

The Week Ending January 10th, 2020



EnviroTech 2020

April 27-29, 2020
Hyatt Regency Calgary

Call for Abstracts – DEADLINE January 17th

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ESAA invites you to submit technical abstracts for the 3rd Annual *EnviroTech*. Abstracts are encouraged in, but not limited to, the following areas:

Water: modelling, monitoring, quality, hydraulic fracturing, emerging contaminants, oilsands issues, saline, contamination, industrial re-use, wastewater treatment, risk management, groundwater, surface water, water wells, wetlands, produced water

Climate Change: adaptation, alternative energy, carbon credits, energy efficiency, energy from waste, GHG monitoring and sampling, regulatory, sustainability, impacts of climate change, CleanTech

Air: monitoring, modelling, sampling, quality, regulatory, noise management

Waste: landfill design, landfill closure, hazardous waste management, emerging contaminants, resource recovery, regulatory

Testing: laboratory testing and sampling, field testing and sampling, monitoring, analysis

Decommissioning: management, safety, hidden dangers, technology

Indigenous: engagement, stewardship, traditional knowledge

Other: topics from areas not listed will also be considered

Abstracts should be no longer than 500 words (not including bio), should include a presenter biography and be submitted as a *Word Document* by no later than midnight on Friday, January 17th, 2020.

For full details, visit: <http://www.esaa.org/envirotech/agenda/call-for-abstracts/>

Sponsorship / Exhibitor Opportunities: Sponsorship and Exhibitor information will be released in early December. If you are interested in receiving the information, please contact: [lorrine@tl2.ca](mailto:lorraine@tl2.ca)

Early Bird Registration: Early Bird Registration is now open. Register before January 31st, 2020 and **save 20%**. [Register Now](#)

We look forward to your continued support of ESAA events and look forward to welcoming you to [EnviroTech 2020](#).

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Comments & submissions are welcome!

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ALBERTA RANCHERS, FARMERS FURIOUS OVER OIL AND GAS COMPANIES' FAILURE TO CLEAN UP THEIR GERIATRIC WELLS

CALGARY – In 1897, a German aristocrat named Count Alfred von Hammerstein was on a journey to the Yukon, where he hoped to make a fortune during the Klondike gold rush. As he arrived in what would later be called Alberta, he decided to stay and try to exploit the reserves of black gold in the oilsands.

Von Hammerstein raised money to sail drilling crews down the Athabasca River on sometimes ill-fated expeditions north of Fort McMurray. On one river trip, two members of the crew drowned. On another, the count's leg was injured in what historical records vaguely describe as a "shooting accident." In the end, the 14 wells he drilled, all before 1909, were unsuccessful.

The count learned "the oilsands would not give up their secrets easily," according to an Alberta government report written in 1978, but he has since been ensconced as "one of the most colourful characters" in the Canadian Petroleum Hall of Fame.

But one of the wells von Hammerstein drilled has a more inglorious history. The well, drilled in 1906 or 1907 near the First Nations community of Fort McKay, is believed to be the province's oldest orphan well, meaning nobody is financially responsible for cleaning it up.

Von Hammerstein died in 1941, long before wildcatters needed reclamation certificates for the wells they drilled. Indeed, the count never even obtained a drilling licence.

That well may be the oldest orphan, but it's not an outlier since there are some 3,406 orphan wells listed in the Orphan Well Association's clean-up list and that's not sitting well with landowners.

Farmers, ranchers and their lawyers say they're furious that oil and gas companies are failing to clean up after themselves and they're concerned that an additional 93,805 inactive wells could become orphaned given Alberta's economic outlook, which would completely overwhelm both the Alberta Energy Regulator (AER) and the provincial government.

"The claim that Alberta's oil and gas is the most ethically produced oil because of the environmentally and socially responsible way in which it's produced is true only to an extent, and where it's not true and where the government and industry need to up their game is in dealing with the legacy wells," said Keith Wilson, a St. Albert, Alta.-based lawyer who represents landowners in fights with energy companies.

Wilson said farmers and ranchers have historically counted themselves among the energy industry's biggest supporters and they routinely sign lease agreements that allow companies to access their land. But the relationship has soured as Alberta's economy has tanked and [landowners encounter problems with both collecting](#) rental payments and getting companies to clean up old contaminated sites.

Geriatric orphan wells such as Von Hammerstein's are a particular sore spot for farmers, because older wells are more likely to contaminate the ground, are more difficult to clean up and take more time to remediate since they were drilled in an age when environmental standards were more lax.

Wilson, who has fought in court to force delinquent companies into cleaning up geriatric wells, said older wells are also more likely to be plagued with rusted out down-hole equipment and he frequently sees wells with cracked cement linings, leading to an increased likelihood that contaminants will flow into the earth.

Moreover, he said, most oil and gas companies prior to the 1990s used pits, dug right next to a well, rather than tanks, to store the fluids and mud used in drilling the well and production. Those pits, he said, dramatically complicate the remediation efforts of older wells because freezing and thawing every winter and spring sends the contaminants deeper into the ground, further spreading any contamination.

Satellite images show one old orphan well near Lloydminster, on the Alberta/Saskatchewan border, encircled by an unnaturally dark shade of brown. The well was drilled during the Second World War on July 25, 1941, and produced a total of 17,052 barrels of oil. Now, 78 years later, it has yet to be fully remediated.

"If you're an oil company and you've got 1,000 old inactive wells and you've got 100 new inactive wells, you can probably clean up all those new minimum-disturbance, coal-bed methane wells for the cost of cleaning up one or two of those old historic 1950s-era wells," Wilson said.

In November 2018, the AER issued a statement that pinned the environmental liability for cleaning up oil and gas infrastructure in the province at \$58.65 billion. That admission came after one of the regulator's vice-presidents said during a presentation that the number could be as high as \$260 billion, a figure that included oilsands mining remediation.

Either way, the problem is daunting. The Financial Post sorted through well data from before 1964, the year the Alberta government started requiring companies to obtain reclamation certificates for cleaning up their oil and gas wells, and found 6,077 wells that are still active today. An additional 5,487 wells have suspended production but have not been cleaned up, and 3,695 wells have been plugged, a state the industry and government calls "abandoned," but not remediated.

Altogether, there are 15,259 wells drilled before 1964 that have not been remediated, or 39.6 per cent of 38,491 wells drilled before that date. In addition, 18,266 of the wells drilled prior to 1964 are exempt from reclamation certificates.

"Not every old one is complicated," said Lars DePauw, executive director of the Orphan Well Association (OWA), which is funded through a levy paid by the industry and collected by the AER.

DePauw said the association prioritizes wells to clean up by their potential threat to public safety. Any well that could be releasing hydrogen disulphide gas is cleaned up first. He said the OWA targets wells in specific regions in area-based closure programs. "After that, we get to chronology," he said.

Since November 2018, the OWA has been working on Von Hammerstein's orphan well. It first plugged the well with cement, monitored it for a year and then capped the well bore last month, though additional work is being planned.

The OWA had been remediating 60 wells per year, but the oil price crash and resulting bankruptcies have forced the association to increase that to 1,000 annually.

One of the largest single funders of the OWA, by virtue of its size, is Calgary-based Canadian Natural Resources Ltd.

According to farmers and surface rights lawyers, CNRL, which produces more than one million barrels of oil and gas per day, is also one of the most active at cleaning up.

The company is a "top performer" in the number of inactive wells it reclaims, spokesperson Nicholas Gafuik said in an emailed statement. "In 2018, we abandoned 1,293 wells and submitted 1,012 reclamation certificates. In 2019, Canadian Natural is targeting approximately 2,000 wells to be abandoned."

Gafuik said the company supports the AER's area-based closure approach because it accelerates the pace of reclamation by being cost effective. "By strategically grouping well and pipeline abandonment by area, we increase efficiencies and manage our impact on the land better," he said.

Farmers and lawyers praise CNRL's pro-activeness and the OWA's attempt to accelerate remediation efforts, but remain concerned by the magnitude of the problem. At the current pace, it would take the OWA and CNRL, the two most active well remediation organizations in the province, 32 years to clean up all the inactive and orphan wells in Alberta.

Daryl Bennett, a farmer in the Municipal District of Taber, said he has wells drilled in the 1940s and 1950s on his property. He calls them "bottom dwellers" and his frustration getting them remediated led him to get involved with local surface rights groups and advocate on behalf of farmers and ranchers dealing with oil and gas producers.

Given the challenges inherent in cleaning up older wells, Bennett said he and other landowners in Southern Alberta have been seeking approvals to build solar power installations on top of old well sites. Renewable power installations, he said, would allow farmers to earn money off land that has previously been contaminated.

"At some point, (the Alberta government or the OWA) are going to be buying some land," he said.

Other landowners are concerned that given the [dire state of Alberta's economy](#) — anemic economic growth, provincial government austerity budgets and low commodity prices — the unfunded liability will be dropped on farmers and ranchers.

“Knock on wood, hope the landowner won’t be doing the reclamation,” said Graham Gilchrist, principal at Gilchrist Consulting in Leduc, who advises farmers and ranchers in the area around Edmonton on dealing with orphan wells and delinquent rental payments from energy companies.

Gilchrist and Bennett both believe Alberta needs a bonding system that forces companies wanting to drill a well to first post collateral so that neither taxpayers nor landowners are ever responsible for the costs of cleaning up orphaned or inactive oil wells.

Lawyers and researchers have also described the need for legislated time limits on cleaning up inactive wells, which they said would dramatically reduce the backlog of 93,805 inactive wells that could be tomorrow’s orphans.

In both Texas and North Dakota, two states that produce large volumes of oil and gas, bonds and time limits have resulted in far fewer orphaned wells and fewer long-term inactive wells than exist in Alberta. Texas was also able to reduce its backlog of orphan sites.

In years past, the Alberta government and industry groups have resisted set time limits to clean up old wells because they said inactive older wells can still be economically viable during periods of higher oil and gas prices.

But historical data show that 60-year-old wells only have a one-per-cent chance of being reactivated in that scenario, according to a study by University of Calgary economist Lucija Muehlenbachs that was published in the International Economic Review in February 2015.

“The probability that an inactive well is going to be reactivated decreases the older it is,” she said. “These inactive wells are not getting reactivated.”

Time limits in Alberta have been successful in the past, but the province has not required bonds prior to drilling activity.

Alberta regulators first introduced a “special well fund” to finance the cost of plugging wells in 1986. Then, in 1993, the government introduced the first levy for orphan wells and began screening the risk that oil and gas companies might orphan their wells by keeping a ratio of how many inactive wells a company owns relative to its active wells.

The government in 1997 then implemented the Long Term Inactive Well Program, which pushed oil and gas companies to be more proactive within stricter time limits.

“That 1997 program was pretty effective,” said Barry Robinson, a lawyer at Ecojustice Canada who acts on behalf of farmers and ranchers, noting that the program included a five-year time frame for plugging inactive oil and gas wells.

That program was replaced in 2000 with the current system that does not include time limits on well remediation.

Robinson said one client in Pincher Creek, in the southwestern corner of the province, has a well that was drilled on his land in 1957.

“This well was drilled when his father owned the land and now he’s saying, ‘I don’t want to pass this onto my kid,’” he said, noting the problem has become an intergenerational one.

This well was drilled when his father owned the land and now he’s saying, ‘I don’t want to pass this onto my kid’

Barry Robinson, a lawyer at Ecojustice Canada

In 1995, Robinson said, there were 12,000 inactive wells in Alberta, but that has since ballooned 680 per cent.

A February 2018 presentation by Robert Wadsworth, AER vice-president, closure and liability, showed the number of inactive wells has grown at a rate of six per cent per year since 2000.

Alberta's current government faces a dual challenge when dealing with the problem. Farmers and ranchers voted in massive numbers for the United Conservatives in the provincial election earlier this year, helping UCP candidates beat NDP candidates in many rural ridings by tens of thousands of votes. However, the UCP also promised to reinvigorate the energy sector by removing red tape and encouraging investment.

Now, with two parts of the government's support base locked in fights over orphan wells, delinquent rental payments and rural property tax arrears, the province is reconsidering existing legislation as it conducts a full review of the AER.

"Currently, the government is working with the Alberta Energy Regulator and industry to review the liability management framework in Alberta," Energy Minister Sonya Savage said in an email. "Our government wants to ensure that the economic environment exists for private industry to be successful and able to bear the costs of well abandonment."

In recent weeks, Premier Jason Kenney has asked Ottawa for financial assistance to help remediate orphaned wells as a way to put unemployed oil and gas workers in rural areas back to work.

Various provincial governments in Alberta, including the recently ousted NDP, have formed panels on how to handle the problem of orphan wells, but it has only continued to grow in the 114 years since Alberta was formed.

Indeed, Alfred von Hammerstein's orphan well north of Fort McMurray has remained unremediated for almost the entire history of the province, which was created by former prime minister Wilfrid Laurier in 1905. Thousands of other old inactive wells and legacy orphan wells have never been cleaned up either.

"What we're seeing is a complete lack of action," said Wilson, adding that company money during oil booms typically gets allocated to new drilling programs, while government money is allocated to building new infrastructure. "The excuse that these wells can be economic and reactivated if prices return to historic highs is false, because we've been through those cycles and no work has been done."

CANADA LAUNCHES STRATEGIC ASSESSMENT OF THERMAL COAL MINING

Coal is one of the most significant sources of carbon emissions and air pollution in the world. Coal-fired electricity has significant adverse environmental and health impacts. Around 40 percent of the world's electricity comes from burning coal, as well as ten percent of Canada's. That is why the United Nations Secretary General has called for no new coal plants by 2020, and why Canada is phasing out traditional coal-fired power by 2030 with a just and fair transition for workers and communities.

Today, the Minister of the Environment and Climate Change, the Honourable Jonathan Wilkinson, in partnership with Natural Resources Minister, the Honourable Seamus O'Regan, announced that Canada will launch a strategic assessment to provide guidance on how future new thermal coal mine projects will be assessed under the *Impact Assessment Act*. Thermal coal is the coal used to generate electricity in power plants.

The strategic assessment will include, but not be limited to:

- Environmental and health impacts of thermal coal mining;
- Market analysis of projected demand for thermal coal, including economic impacts and impact on jobs in Canada; and
- The use of thermal coal mining, including its impact on Canada's international commitments and initiatives.

The Coalspur Vista Coal Mine Phase II Project—located in Hinton, Alberta—is undergoing an environmental assessment by the Province of Alberta. This project will not be designated for federal review under the *Impact Assessment Act* because it will be covered under the Provincial environmental assessment process, and the issues of Federal jurisdiction will be covered through other regulatory processes. If the project proceeds, it will be subject to all applicable federal regulations.

Draft terms of reference for the strategic assessment of thermal coal mining will be available online for public comments early in 2020.

Quick facts

- Thermal coal is used for generating power. In contrast, metallurgical coal is used primarily to make steel.
- Section 95 of the *Impact Assessment Act* allows the Minister to authorize a strategic assessment of any issue that is relevant to conducting impact assessments of designated projects or of a class of designated projects.
- Strategic assessments can offer guidance on how policies and measures, as well as domestic and international commitments, should be considered in an impact assessment.
- Canada launched the [Powering Past Coal Alliance](#) in 2017, in partnership with the UK. Over the past two years, this group of governments and companies committed to phasing out coal power has grown to nearly 100 members.

Associated links

- [Impact Assessment Process Overview](#)
- [Minister Wilkinson's Response to the request for designation of the Vista Coal Mine Phase II Project](#)
- [Alberta's environmental assessment of the Vista Coal Mine Phase II Project](#)

CONTAMINANTS FOUND AT DETROIT-AREA INDUSTRIAL SITE

(Source: CBC News) High levels of multiple contaminants have been found in soil and groundwater at an old industrial site in suburban Detroit, state regulators said, after an inspection that was triggered by the discovery of a yellow-green substance along a major interstate.

There is no risk to drinking water intakes on Lake St. Clair, the Michigan Department of Environment said Friday.

The U.S. Environmental Protection Agency (EPA) soon "will begin dozens of soil borings as part of an initial site characterization to help determine the extent and levels of contamination" at the former Electro-Plating Services in Madison Heights, the state said.

On Dec. 20, drivers on Interstate 696 saw a brightly coloured goo seeping through a concrete barrier along the eastbound shoulder. Macomb County Public Works Commissioner Candice Miller called the site a disaster.

"While this site is not in Macomb County, this site clearly demands an immediate response from all appropriate authorities until it is no longer a danger to our community and to our magnificent Great Lakes," Miller said.

The state said Electro-Plating was issued a cease-and-desist order in December 2016 due to mismanagement of hazardous waste.

The EPA conducted a cleanup in 2017, removing hazardous chemicals and pumping contaminated liquid from an earthen pit, but it "was not intended to address all environmental impacts," the state said.

The owner, Gary Sayers, 77, recently was ordered to pay \$1.5 million for the EPA's costs. He was also sentenced to a year and a day in federal prison for illegally storing hazardous waste. The government said he didn't have a permit. It was the latest legal action against Electro-Plating. The company had been under scrutiny by regulators for more than 20 years.

US MOVES TO EXEMPT BIG PROJECTS FROM ENVIRONMENTAL REVIEW

(Source: New York Times) WASHINGTON — The White House on Thursday will introduce the first major changes to the nation's benchmark environmental protection law in more than three decades, moving to ease approval of pipelines and other major energy and infrastructure projects without detailed environmental review.

Many of the changes to the law — [the 50-year-old National Environmental Policy Act](#), a landmark measure that touches nearly every significant construction project in the country — have been long sought by the oil and gas industry, whose members applauded the move and called it long overdue.

White House officials on Thursday morning declined to comment on the proposed regulations, which will be formally released later in the day. One person familiar with the announcement said the administration would highlight a replacement of the Herbert C. Bonner Bridge in North Carolina, which took more than 20 years because of federal reviews. Administration officials will argue that the changes will help projects like that one move faster.

Under the law, major federal projects like bridges, highways, pipelines or power plants that will have a significant impact on the environment require a review, or environmental impact statement, outlining potential consequences. The proposed new rules, which guide the way the law is implemented, will narrow the range of projects that demand such a review. It will do that by creating a new category of “non-major” federal actions that can move forward without any assessment, according to two government officials familiar with the regulation.

In some cases the federal government merely funds studies for small infrastructure projects, which triggers a required environmental review.

But the proposed regulation does not set a dollar threshold for what constitutes a large federal footprint, which one official said could also allow major mining, drilling and other projects to avoid environmental assessments. That lack of definition is highly likely to prompt lawsuits from environmental organizations.

“Our country is at a pivotal time for American energy,” said Anne Bradbury, chief executive of the American Exploration & Production Council, which represents independent operators.

She praised the administration for clarifying the regulations and creating what she described as a more-efficient process that “removes bureaucratic barriers that were stifling construction of key infrastructure projects.”

Environmental groups said the revisions would threaten species and lead to more greenhouse gases in the atmosphere. [The proposed regulations also will relieve federal agencies of having to take climate change into account in environmental reviews.](#)

The proposal will not mention the words “climate change” but will say that agencies no longer must consider the “cumulative” consequences of new infrastructure. Courts have interpreted that requirement as a mandate to study the effects of allowing more planet-warming greenhouse gas emissions into the atmosphere. It also has meant understanding the impacts of rising sea levels and other results of climate change on a given project.

That means agencies will not have to examine whether a pipeline, mine or other fossil fuel project would worsen climate change. It also means there will not be any requirement to understand how or whether a road or bridge in a coastal area would be threatened by sea-level rise.

Richard L. Revesz, a professor of environmental law at New York University, said he did not believe the changes would hold up in court. He noted that the Environmental Policy Act requires that all the environmental consequences of a project be taken into account, and that core requirement cannot be changed by fiat.

“A regulation can’t change the requirements of a statute as interpreted by the courts,” Mr. Revesz said. In fact, he argued, it is more likely that federal agencies will be sued for inadequate reviews, “thereby leading to far longer delays than if they had done a proper analysis in the first place.”

REMEDIATION 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 Connecting the Science to Managing LNAPL Sites a 3 Part Series - January 9, 16, and 30, 2020. The newly updated LNAPLs (Light Non-Aqueous Phase Liquids) 3-part training course series is based on the ITRC guidance: LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies (LNAPL-3, 2018) and focuses on connecting the science to managing LNAPL sites and helping you: build upon your

understanding of LNAPL behavior in the subsurface (Part 1), develop your LNAPL conceptual site model and LNAPL remedial goals (Part 2), and select/implement LNAPL technologies (Part 3). After this training series, the expectation is that you will have the skills and understanding to use ITRC science-based resources to improve decision making at your LNAPL sites. For regulators and other government agency staff, this improved understanding can hopefully be incorporated into your own LNAPL programs. It is expected that participants will attend this 3-part training series in sequence. For more information and to register, see <https://www.itrcweb.org> or <https://clu-in.org/live>.

ITRC Integrated DNAPL Site Characterization - January 14, 2020, 1:00PM-3:15PM EST (18:00-20:15 GMT).

The Integrated DNAPL Site Characterization Team has synthesized the knowledge about dense non-aqueous 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 <https://www.itrcweb.org> or <https://clu-in.org/live>.

An Overview of the Fundamentals of Sequence Stratigraphy and its Application to Developing Robust Conceptual Site Models and Remedial Strategies - January 15, 2020, 1:00PM-3:00PM EST (18:00-20:00 GMT).

Sequence stratigraphy has arguably revolutionized stratigraphic analysis in the oil and gas industry since the 1970s, but to date, few environmental companies have utilized this power tool. Although many companies have intended on using sequence stratigraphic correlation techniques to define the subsurface heterogeneity, they have mistakenly used lithostratigraphy, significantly limiting their ability to construct accurate CSMs and develop effective remedial strategies. In this seminar, we will leverage case studies to make participants aware of the pitfalls of lithostratigraphy and highlight the role of sequence stratigraphy in generating robust and realistic hydrogeological models. For more information and to register, see <https://clu-in.org/live>.

ITRC Bioavailability of Contaminants in Soil: Considerations for Human Health Risk Assessment - January 23, 2020, 1:00PM-3:15PM EST (18:00-20:15 GMT).

The basis for this training course is the ITRC guidance: Bioavailability of Contaminants in Soil: Considerations for Human Health Risk Assessment (BCS-1). This guidance describes the general concepts of the bioavailability of contaminants in soil, reviews the state of the science, and discusses how to incorporate bioavailability into the human health risk assessment process. The target audience for this guidance and training course are: project managers interested in decreasing uncertainty in the risk assessment which may lead to reduced remedial action costs, and risk assessors new to bioavailability or those who want additional confidence and training in the current methods and common practices for using bioavailability assessment to more accurately determine human health risk at a contaminated site. As a participant in this training you should learn to: apply the decision process to determine when a site-specific bioavailability assessment may be appropriate, use the ITRC Review Checklist to develop or review a risk assessment that includes soil bioavailability, consider factors that affect arsenic, lead and PAH bioavailability, select appropriate methods to evaluate soil bioavailability, and use tools to develop site-specific soil bioavailability estimates and incorporate them into human health risk assessment. For more information and to register, see <https://www.itrcweb.org> or <https://clu-in.org/live>.

New Documents and Web Resources

Climate Resilience Technical Fact Sheets. (EPA 542-F-19-003, EPA 542-F-19-004, EPA 542-F-19-005). Remedies at contaminated sites may be vulnerable to the implications of climate change and extreme weather events. The EPA Superfund Program developed an approach that raises awareness of these vulnerabilities and applies climate change and weather science as a standard operating practice in cleanup projects. EPA recently updated its three-part fact sheet series to continue helping project managers and other cleanup stakeholders assess site-specific remedy vulnerabilities and, where needed, implement measures to increase the remedy's resilience. The series addresses contaminated sediment sites (October 2019, 10 pages), contaminated waste containment systems (October 2019, 10 pages) and groundwater remediation systems (October 2019, 8 pages). The updated series provides more examples of potential measures to increase remedy resilience, highlights Superfund projects involving measures to address recently-identified vulnerabilities, and describes new decision-making tools developed

by EPA or other federal agencies to address particular implications of a changing climate. The climate resilience concepts may also apply to site cleanups conducted under other regulatory programs or through voluntary efforts. View or download at <http://www.epa.gov/superfund/superfund-climate-resilience>.

ITRC Implementing Advanced Site Characterization Tools. Advanced site characterization tools (ASCTs) are capable of rapid implementation and data generation and can be used to provide data for a more precise and accurate conceptual site model. Although these tools have been available for several years, they often are not used because users perceive them to be expensive and unavailable, or do not understand how ASCTs work and how to interpret the acquired data. This comprehensive guidance can assist stakeholders with the selection and application of ASCTs, as well as the interpretation of data gathered by ASCTs to evaluate the best cleanup options for a project. The guidance divides ASCTs into four categories: Direct Sensing, Borehole Geophysical, Surface Geophysical, and Remote Sensing. This free guidance includes an ASCT Selection Tool, summary tables that provide additional information to evaluate the applicability of each tool, case studies, checklists, and training videos. View and use at <https://asct-1.itrcweb.org/>

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:

- Final Close Out Report Intel Santa Clara 3 Superfund Site Santa Clara, California
- Level 2 Remediation Action Plan, AA Discount, 181 West Kings Highway, Central Hill, Florida
- Advances in Remediating Groundwater Contaminated with Chlorinated Solvents (Webinar)
- Feasibility Study 7th Street and Missouri Avenue Water Quality Assurance Revolving Fund Site Phoenix, Arizona
- Status of SERDP and ESTCP Efforts on PFAS and Innovative Approaches for THE Treatment of Waste Derived from PFAS Subsurface Investigations (Webinar)

Upcoming Events

Registration is now open to attend the 2020 AGAT Tech Talks in Alberta!

Join us on January 24 in [Calgary](#) and on January 31 in [Edmonton](#) to explore the issues that will shape the future of our industry. Technical programs for these Tech Talk sessions are included below.

Hot Breakfast, Networking Breaks and Lunch are included in the registration. Please contact **Mélissa Hohenberger** at AGAT Laboratories for all inquiries and any special dietary requirements at hohenberger@agatlabs.com or **403.736.2062**.

Registrants may be eligible for Professional Development Credits with **AIA, APEGA, ACPA, ASPB & Eco Canada**.

Registration Fee: \$180.00 (includes GST)

Calgary Registration



Edmonton Registration



CGII CROSS-BORDER HAZARDOUS WASTE AND HAZARDOUS RECYCLABLE MATERIALS WEBINAR INFORMATION SESSION

On December 15, 2018, the proposed *Cross-border Movement of Hazardous Waste and Hazardous Recyclable Material Regulations* (proposed Regulations) were published in *Canada Gazette*, Part I. This publication initiated a 60-day public consultation period during which stakeholders submitted comments to Environment and Climate Change Canada (ECCC) on the proposed Regulations.

The proposed Regulations can be found at the following link: <https://pollution-waste.canada.ca/environmental-protection-registry/regulations/view?Id=80>.

ECCC has reviewed and considered the comments submitted by stakeholders on the draft Regulations published in Part I of the *Canada Gazette*. In January 2020, ECCC will be offering information webinars in English and French on the Department's proposed path forward for developing final Regulations. The purpose of these sessions is to provide stakeholders with the opportunity to obtain clarifications related to the questions ECCC received during the public consultation period. The sessions will include a brief presentation focused on some of the proposed key changes, followed by a question and answer period. Further comments will not be collected during these sessions.

The information sessions will be delivered on the following dates and times:

- January 22, 2020: 1:00pm – 3:00 nom EST (English)
- January 23, 2020: 1:00pm – 3:00pm EST (French)

If you wish to participate in one of these sessions, please respond to ec.mt-tm.ec@canada.ca with you preferred date. A confirmation email will be returned to you with the webinar details. Space is limited to 200 participants per session and will be allocated on a first come first served basis. Additional information sessions may be added as needed.

AQUALITY WETLAND COURSE - NEW DATES FOR 2020

The course dates scheduled for 2020 are:

February 18-19, 2020 in Edmonton, AB

1. **March 24-25, 2020 in Calgary, AB**
2. **April 14-15, 2020 in Edmonton, AB**
3. **May 5-6, 2020 in Calgary, AB**

This comprehensive course titled “**Alberta Wetlands: From Classification to Policy**” is designed to help consultants, industry professionals, resource managers, not-for-profit organizations, and government regulators understand the theoretical component used in wetland assessments. We have had a variety of government/industry/non-profit groups host in-house training sessions as well.

This course has had great feedback and would benefit any who wish to attend. If you or any of your colleagues are interested in registering you can visit our website at <http://www.wetlandpolicy.ca/alberta-wetlands-from-classification-to-policy> to register and obtain further information.