EnviroNotes

ALS Environmental

Summer 2011

ALS continues to expand into USA environmental markets

With the continued expansion of ALS Environmental in the USA, news spread quickly within the industry when the announcement was made public about Analytical Laboratory Services, Inc. (ALSI) joining forces with ALS Environmental. This ranks ALS in the nation's Top 5 Revenue Leaders according to the newly published list from the May 2011 edition of the Environmental Lab Washington Report.

ALSI is a mid-sized analytical laboratory with locations in Middletown, York, and Spring City, Pennsylvania. ALSI employs approximately 150 staff. They are a premier provider of industrial hygiene, environmental, drinking water and field sampling services. Additionally, the company has four sales offices and service centers in Harrisburg and Chambersburg, Pennsylvania; Edison, New Jersey; and Columbia, Maryland.

ALSI has earned an outstanding reputation built on over 25 years of service to clients in a wide range of government sectors and commercial industries. The company's comprehensive suite of laboratory testing services provides its clients with high quality, legally defensible data for use in promoting human health and environmental protection.

Raj Naran, ALS Environmental Vice President – Europe and North America, states, "The expertise, reputation and service excellence that ALSI has developed compliments and broadens our existing USA-based business.

'EXPAND' *Continued on Page 2*

Highlights in this issue . . .

ALS Middletown, PA Capabilities

Gas Chromatography/Mass Spectrometry
- Priority Pollutants
- Target Compound List
- Volatile Organic Compounds
- Semi-volatiles
- Total Toxic Organics
- Library Search (Tentatively Identified Compounds)

Gas Chromatography
- Volatile Organic Compounds
- Organohalide Pesticides
- Carbamate Pesticides
- BTEX
- GC Fingerprint
- TPH by GC/FID
- Pesticides/PCBs
- Chlorinated Herbicides
- Organophosphorus Pesticides
- Organic Acids

Inorganic Metals
- Elemental Analysis by ICP
- Elemental Analysis by ICP/MS
- Mercury by Cold Vapor AS
- Inorganic Chemicals (IOCs)
- Target Analyte List (23 elements)
- Priority Pollutant Metals
- RCRA Metals (8 elements)
- TCLP Metals (8 elements)
- Low-level Mercury

Organics
- HPLC Explosives
- TO-15 VOCs
- TO-13 PAHs

Water Quality - Wet Chemistry
- Alkalinity
- Biochemical Oxygen Demand
- Chemical Oxygen Demand
- Chloride
- Hexavalent Chromium
- Cyanide
- Fats, Oils and Grease
- Fluoride
- Hardness
- Nitrogens - Ammonia, Nitrate, Nitrite, Total Kjeldahl, Total Organic
- Odor
- Phenols
- Phosphorus
- Solids - Total, Total Dissolved, Total Suspended, Total Volatile, Total Fixed
- Specific Conductance
- Sulfate, Sulfide, Sulfite
- Surfactants
- Total Organic Carbon (TOC)
- Total Organic Halogen (TOX)
- Turbidity

Microbiology
- Total Coliform
- Fecal Coliform
- Standard Plate Count
- Iron Bacteria

'EXPAND' *From Page 1*

In the future, we plan to further expand our market reach in the USA by providing clients with access to the combined services of ALSI and ALS in a larger number of locations and a broader base of capabilities."

Former ALSI president Michael Farlling is now serving ALS Environmental as the Eastern USA Operations Director.

"We are very pleased to announce that we are joining the ALS Group as a key component of their platform for expansion and growth in the northeastern United States, and we look forward to continuing to provide our customers with the same level of superior and dependable services that they have come to expect from ALSI," Farlling said.

The ALS Group is very excited about the potential of future business opportunities within Canada, USA, Mexico, and abroad. This step toward increased growth and diversity in the company's range of capabilities will serve to solidify the ALS Group's position as a world leader in the provision of globally distributed analytical testing and inspection services.

"The expertise, reputation and service excellence that ALSI has developed compliments and broadens our existing USA based business."

Raj Naran, ALS Environmental Vice President - Europe and North America

QA CORNER

Canada

ALS raises the bar for internal audits

By Linda Neimor
National Quality Manager, ALS Canada

The four accrediting agencies used by the ALS Environmental locations in Canada audit our accredited test methods every two years. These audits primarily focus on compliance to the requirements of ISO/IEC 17025:2005, "General Requirements for the Competence of Testing and Calibration Laboratories." Under most circumstances, external audits by our accrediting bodies do not assess or review the actual performance of a lab's test methods for accuracy, precision, or other related factors.

In between external audits by our accrediting bodies, ISO/IEC17025:2005 requires accredited laboratories to conduct internal audits of their testing activities. This requirement is usually fulfilled by reviewing test method documents to determine whether they are performed as described in the laboratory's Standard Operating Procedure (SOP).

At ALS, we have raised the bar for internal audits by not only confirming that our test methods are conducted as documented, but also by ensuring that our methods comply with applicable reference methods, that any deviations are scientifically sound and validated that test method performance continues to meet ALS requirements and our customers' needs, and that new and established best practices and technologies are implemented.

ALS Vancouver, BC

We achieve these goals in several ways. Our audit process begins with a comparison of our SOP for the test against the applicable reference method. At minimum, we revalidate each audited test method by doing a comprehensive statistical evaluation of all recent quality control samples to confirm that our Limits of Reporting (detection limits) continue to be achievable, and that the test continues to meet our objectives for precision and accuracy. We also ensure that the most up-to-date and referenceable practices are followed for sample preservation and storage conditions. All calculations and formulas are verified through to final report generation. Finally, all aspects of the test method are scrutinized by Quality staff and technical experts to ensure that analysts have clear and concise work instructions that are technically sound and consistently implemented.

The ALS technical audit process is one of the tools we use to ensure our testing services exceed your high standards for quality and reliability.

ALS OPERATIONS UPDATE

Canada

Background levels of metals in filtration media

By Mark Hugdahl
Technical Services Director, ALS Canada

By definition, dissolved metals are those metals that remain in solution after filtration through a 0.45µm filter. In most cases, dissolved metals should be filtered in the field immediately after sampling to ensure that test results represent conditions at the site. This is especially critical for groundwaters because some metals (e.g. iron and manganese) can quickly convert from soluble to insoluble species when anoxic waters are exposed to oxygen.

Field filtration of dissolved metals from groundwater wells is most commonly done using disposable high capacity in-line filters. Several filters of this type are commercially available. This approach is suitable for quick and easy filtration of large sample volumes, and is a convenient way to filter immediately at the time of sampling, but it does require the use of a sampling pump.

Disposable syringe-based filters are a simple and easy-to-use alternative for the manual filtration of grab samples, or in other situations where sampling pumps are not used. If syringe filters are suitable for your field filtration application, we highly recommend that you contact ALS for guidance in media selection. Many ALS locations can now provide our clients with syringe filters and syringes that have been thoroughly tested for metal background levels.

Regardless of which filtration technique is used, test results for trace level dissolved metals are often limited by the cleanliness of the filtration equipment used. Thus it is critical that the filter media you use has been confirmed in advance to be suitable for your testing needs.

ALS recently conducted tests for background metals in four different commercially available in-line filters and in the syringe filters that we currently recommend to our clients. For each of the in-line filters we tested, we prepared test

Disposable Syringe Filter

samples after rinsing with 1.25 L of deionized water, and without any pre-rinsing. Each in-line filter type was tested at least in duplicate. Syringe filters were tested without any pre-rinsing. Control Blanks were used to confirm that all detections were attributable to the filter media.

We analyzed our filter test samples at the ALS Vancouver lab using High Resolution ICPMS (HR-ICPMS), one of the most advanced and sensitive technologies available for ultra trace level metals analysis. HR-ICPMS detection limits for most metals are in the part per trillion range, well below our "routine" Limits of Reporting (LORs) from conventional ICPMS tests.

Our primary conclusions from this study were as follows:

1. The syringe filters recommended by ALS are suitable for most metals without any pre-rinsing, even down to our ultra trace HR-ICPMS LORs. Strontium was the only metal detected in syringe filtered blank samples (mean Sr background was 0.1 ug/L).
2. For the in-line filters we tested, pre-rinsing with sample or deionized water (e.g. ≥ 1L) is necessary to prevent false positives, even with routine level LORs. Without pre-rinsing, the following elements were detected in one or more filters at levels that exceeded the routine LORs of the ALS Vancouver lab: Ba, Ca, Cu, Li, Mg, Mn, K, Na, Sr, and Zn. Some elements exceeded our LORs by as much as 50 times!
3. All of the commercially available in-line filters we tested were suitable for most "routine" level metals testing applications if pre-rinsed with 1.25L of deionized water immediately prior to use (low levels of Ba, Na, and Zn were still detected in one or more filter types, but only at one to three times our routine LORs).
4. Pre-rinsing and filter selection is especially critical when using in-line filters for ultra trace metals by High Resolution ICPMS. When working down to extremely low detection limits, some in-line filters performed better than others. Even after pre-rinsing, the following metals were detected above our ultra trace HR-ICPMS LORs in one or more of the in-line filters that we tested: Ba, Ca, Cu, Pb, Li, Mg, K, Na, Sr, Tl, and Zn.

This brief study shows the importance of selecting filtration equipment and media that are clean enough to meet the detection limit objectives of any dissolved metals testing program. It also highlights the critical importance of Field Blanks, which ALS recommends whenever field filtration is done.

Field Blanks are especially critical for testing metals at ultra trace levels, e.g. by HR-ICPMS.

For more information about this study or about specific ALS recommendations for field filtration options, please contact Mark Hugdahl or your Client Services representative.

REGIONAL NEWS

United States

ALS Salt Lake City announces new capabilities for aromatic amines

By John M. Reynolds
Research & Development, ALS Salt Lake City

The analysis of amines for industrial hygiene purposes remains a difficult challenge and continues to be a confusing class of analytes to accurately quantify. Over the past several years multiple attempts were researched to successfully develop methods that would precisely satisfy industry demands. Finally, the time is here to announce the long awaited results.

To understand the difficult challenge one must understand the nature of how amines perform and react. Amines come in many flavors, so to speak. Each flavor requires a different approach. Fortunately, in most cases, amines can be grouped into several broad categories and the analytical requirements are rather similar in nature. ALS Salt Lake City can now perform testing on Aromatic Amines. Approximately 30 compounds can be quantified, and this analysis is performedusing a uniquely developed ALS method incorporating elements of NIOSH and OSHA reference methods.

Many OSHA methods are similar for amine analysis. The ALS procedure is, in fact, similar to OSHA 71 or 73; including their modified versions. One difference, however, is that our method includes specific requirements for certain amines where they exist, such as specific sampling media. For example, in most aromatics amines, the acid treated glass fiber filter is sufficient. For those amines that are more volatile during storage such as aniline and dimethylaniline, acid treated SAD-7 is required. In some cases, clients will submit a silica gel tube or an XAD-2 sample, and the sample will still be valid for analysis.

The ALS Standard Operating Procedure for Aromatic Amines illustrates specific instructions for determining aromatic amines on wipes and in water (generally clean water, not sludge or soil). Some solid matrices also can be handled if they do not dissolve or contribute a heavy load of both aqueous-acid-soluble and organo-soluble background contaminants.

For the purpose of quoting this capability, the method reference is irrelevant. For example, whether OSHA 57, 65, 71, 73, 87, PV2079 or NMAM 2017 are quoted, they will all follow the ALS SOP. Only one major exception exists. The ALS Aromatic Amine procedure uses GCMS instrumentation instead of GC-ECD. This change provides better selectivity and improved accuracy in identification. Finally, the ALS procedure is equally just as sensitive or is more sensitive than the OSHA procedures.

Please contact ALS Salt Lake City for more details regarding our full list of amine capabilities or to learn more about our complete list of value-added services.

CLIENT SERVICES

WebTrieve provides convenience to ALS clients across North America

By Tim Crowther
Client Services Manager, ALS Canada

WebTrieve Updates

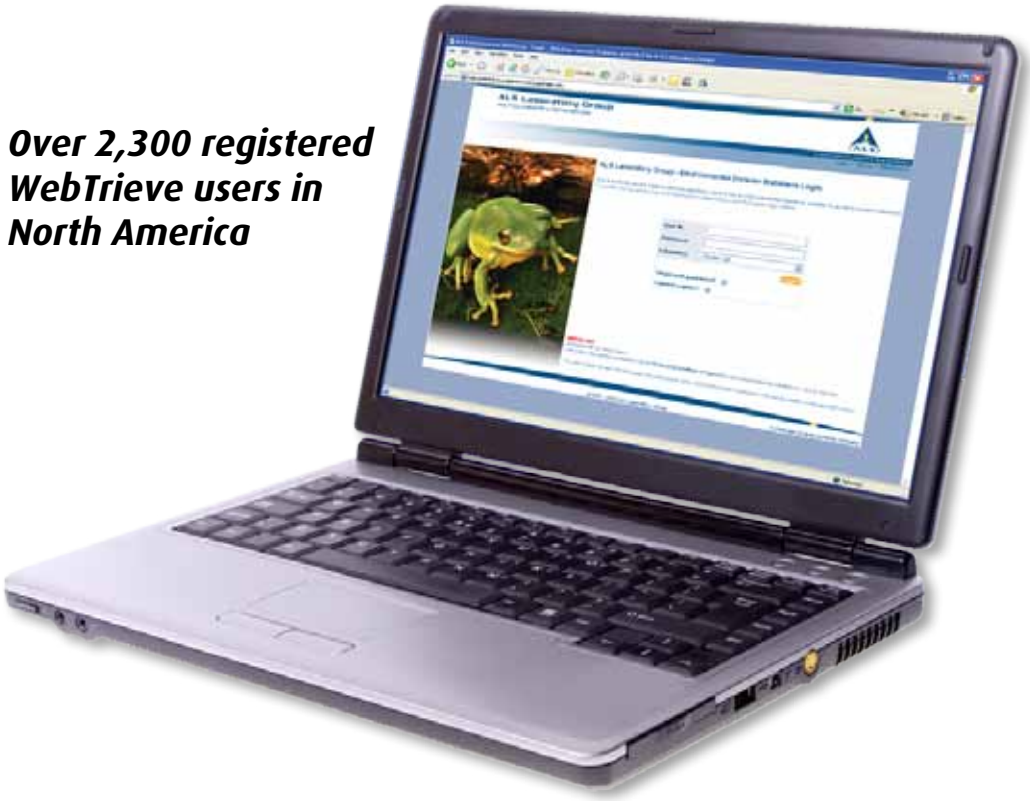
Thank you to all our clients for supporting WebTrieve™ by registering. We now have more than 1,300 users registered in Canada and nearly 1,000 registered users in the USA. This has far exceeded our original expectation. We have also made some significant changes to the WebTrieve™ software in Canada to make searching and navigation easier, and we have also added a Notice Board to keep you up-to-date with any changes to new or pending regulations. Expect to see additional new WebTrieve™ features coming soon.

The following Canadian regulations were updated or added to WebTrieve™ in 2011

- Manitoba - City of Winnipeg Discharges to Land Drainage System - Schedule D
- Manitoba - City of Winnipeg Discharges into Wastewater and Land Drainage Systems
- Ontario MOE C of A TNPI
  Alberta Tier 1 Groundwater Remediation Guidelines Table 2 (Dec 2010)
- British Columbia Contaminated Sites Regulation (Oct 2010)
- Federal Metal Mining Effluent Regulation (Jun 2002)
- British Columbia Approved and Working Water Quality Guidelines (Jan 2010)
- Ontario Municipality of York Storm Sewer By-Law #S-0064-2005-009 (Jan 2007)

Please stay tuned to the newsletter and look for future changes on our new Notice Board on the WebTrieve™ Login page.

Over 2,300 registered WebTrieve users in North America



New Client Service Deliverables

Do you know where to find up-to-date sample handling and preservation information? The July 2010 version of the Western Canada Sampling/Handling Guide (slide rule), our free WebTrieve™ Mobile Phone App, and the electronic chain of custodies on our website have been updated to reflect recent changes to our recommended preservation and hold time practices. If you are currently working with older versions of these tools or have stocks of our paper chain of custodies that still have the ALS Laboratory Group logo, we recommend that you contact your Account Manager to obtain the most recent versions.

Mercury Analysis

Did you know that ALS provides some of the most advanced testing services available for mercury species in environmental test samples?

Our specialty mercury testing services include ultra trace level Total and Dissolved Mercury by EPA Method 1631 as well as ultra trace level Methyl Mercury analysis by EPA Method 1630.

These services provide Limits of Reporting that are sure to exceed your most stringent requirements.

'CLIENT SERVICES' *Continued on Page 7*

CLIENT SERVICES

ALS Vancouver, BC

'CLIENT SERVICES' *From Page 6*

Detection Limits for Total and Dissolved Mercury

Sample Matrix	Limit of Reporting (LOR)
Soil / Sediment	5 ug/kg dry weight
Tissue / Biota	1 ug/kg wet weight
Waters	0.5 ng/L

Detection Limits for Methyl Mercury

Sample Matrix	Limit of Reporting (LOR)
Soil / Sediment	0.05 ug/kg dry weight
Tissue / Biota	1 ug/kg wet weight
Waters	0.05 ng/L

Our specialty mercury testing services complement the full spectrum of testing that we provide for trace metals in almost any sample matrix. Please contact your account/project manager for information on bottle requirements, preservations and nearest locations.

Environmental Journals – What's new?

Accessibility of polybrominated diphenyl ether congeners in aging soil

Polybrominated diphenyl ethers (PBDEs) are used as flame retardants in foams and plastics in thousands of commercial products. The similarity of PBDEs to PCBs and other persistent organic pollutants (POPs) has increased awareness of these compounds. A recent study has shown that the presence of certain species of plants and microorganisms were able to make PBDEs more accessible for environmental uptake in aged soil.[1]

Walmart recently announced that all products sold after June 1, 2011 will be PBDE free. Is Walmart showing us the way of the future?

Human Detoxification of perfluorinated compounds

Perfluorinated compounds (PFCs) are used as stain repellents on furniture and clothing as well as in the manufacturing of non-stick cookware. Human exposure to PFCs is commonplace and is becoming a public health issue due to bioaccumulation. Analysis of PFCs and their metabolites in serum, urine, sweat, and stool samples can provide important information on the most effective detoxification treatment for patients that have been exposed to high levels of PFCs.[2]

References

1. G.W. Welsh, K.E. Mueller, R.S. Soman, A.P. Vonderheide and J.R. Shann, *J. Environ. Monit.*, 2009, **11**,1658-1663

2. S.J. Genuis[a], D.Birkholz[b], M. Ralitsch[b], N.Thibault[b], *Public Health*, 2010, **124**, 367-375
[a] University of Alberta, Canada
[b] ALS Laboratory Group

Elements FOR Success

ALS emphasizes Teamwork in Elements for Success series

By Jarrod Evans
Marketing Coordinator, North America

Elements for Success is an employee marketing campaign that promotes key principles and values to employees. These principles will create success for our company, our employees, and our clients.

With the fifth installment in the ALS Environmental "Elements for Success" campaign, employees across North America focused on the importance of Teamwork. This is a key ingredient to a recipe that delivers exceptional performance and service to customers.

The phrase that identifies the Teamwork element is, "I am powerful. *We* are unstoppable." This sends a powerful message to employees that as a team, ALS can accomplish anything.

To celebrate Teamwork, ALS Environmental employees all over the continent divided into teams and competed against each other in a scavenger hunt. The event brought the employees together and showed the value of working in a unified group. The teams had to find items ranging from professional hockey tickets to cartoon character lunch boxes. They were awarded points for each item and each ALS location crowned a champion for the event.

'ELEMENTS' *Continued on Page 8*

*ALS employees at the **Winnipeg, Manitoba** laboratory Jessica Eadie, Cherrie Fournier, and Lorraine Genaille add up the points from the "Teamwork" Scavenger Hunt.*

'ELEMENTS' *From Page 7*

Brent Stephens, ALS Salt Lake City Laboratory Director, said employees had a great time and learned a lot.

"This event took on a life of it's own, and everyone was totally into it! We had a great time and it was a definite winner," Stephens said. "I was taken by surprise at the level of teamwork and friendly rivalry this created. There were three days of laughing and teasing, and everyone participated."

ALS locations in North America recently installed a new element in the series — Safety. The ALS Group is putting a renewed emphasis on the importance of safe practices on a global scale.

*The scavenger hunt champions from the **Everett, Washington** laboratory, "The Dream Team" — From left: Rick Bagan, Russ Lister, Evelyn Scroggin, Dan Sherrill, Lucy Panteleeff, Shawn Robinson, Glen Perry, Dorota Ciszek, Halle Kunst, Carl Nott.*

REGIONAL NEWS

Western Canada

ALS expands to Yukon

By Brent Makelki
BC & Yukon Mining Sector Manager

ALS has recently opened a new laboratory location in Whitehorse to service the Yukon region. It will serve as a sample reception and bottle/cooler shipping centre as an extension of the full service laboratory in Vancouver, BC starting in May 2011. We are now pursuing CALA ISO 17025 accreditation for the testing of waters for short hold time parameters including pH, EC, TSS, TDS, Turbidity, Alkalinity, Anions, Nutrients, and BOD. The laboratory will begin operation as an ALS QUICK LABORATORY in the summer of 2011.

Our goal is to provide exceptional service and quality directly to the clients in northwest Canada and our location will give convenient and customer service access that is second to none.

For more information, contact Brent Makelki via telephone or via email: brent.makelki@alsglobal.com.

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REGIONAL NEWS

Renovated Water Quality Laboratory at ALS Edmonton, AB

Western Canada

ALS Edmonton upgrades Water Quality Laboratory

By Lisa Watt
ALS Edmonton

Last year brought substantial improvements to the working space for employees of the Inorganic Water Quality Department of the ALS Edmonton facility. Prior to recent improvements, our staff had been operating in a 3300 square foot bay that had previously been a soil preparation and metals digestion and analysis lab. The old laboratory was beginning to show its age due to the corrosive nature of the digestions that were conducted there. In addition, the space was not conducive to efficient workflow because its many walls and poor layout caused congestion and separation of our functional teams.

After several meetings with senior staff and technicians from the Water Quality group, we proposed a renovation that included removal of walls and expansion of the lab areas. We adopted an open concept plan to allow better interaction and communication among our teams, and to facilitate better cross-training of staff and improved workflow through the lab. After many drafts of the floor plan, and with input from our senior managers, our renovation project was approved.

Our project plan was executed to perfection. Because of the dedication of all ALS staff involved in the project, we were able to accomplish the renovation and the transition into the new space on time and on budget, without any disruption of services to our clients. The renovations resulted in many benefits, including an improved working atmosphere, more efficient workflows, and better staff communication, which has ultimately reduced our analysis turn-around-times and improved our overall client service. We are now proud to showcase our new facility to all our staff and clients!

For details on scheduling a tour, please contact Sales or Client Services to make arrangements.

Western Canada

Fort McMurray laboratory delivers value

By Sara Burry
Laboratory Supervisor, ALS Fort McMurray

Here in Fort McMurray, Alberta we are aware that the work never stops in the Oil Sands. Fort McMurray, within the Regional Municipality of Wood Buffalo (RMWB), is a unique part of Alberta, where everything can change from one day to the next. We see many people come and go but the need for environmental analysis remains constant. The ALS Fort McMurray lab is located at 245 MacDonald Crescent, in the Gregorie Industrial area, and our courteous and pleasant staff are always ready, willing and able to meet our clients' needs for environmental testing.

Some of the services that we offer on a regular basis include:

- Customized bottle orders, which includes pre-labelled bottles grouped by sampling site (e-mail requests to fmbottleorders@alsglobal.com)
- After-hours secure sample drop off area
- After-hours and Emergency contact (our on-call phone number is 780-714-8482)
- After hours emergency analysis
- Daily shipments to other ALS locations

We are also willing to meet any special needs that may arise such as:

'FORT McMURRAY' *Continued on Page 10*

REGIONAL NEWS

'FORT McMURRAY' *From Page 9*

- Emergency same day bottle orders
- After-hours pick up and drop off

Laboratory testing that is routinely conducted at the Fort McMurray lab includes:

- Naphthenic Acids by FTIR (including low level)
- Oil & Grease by FTIR
- Chemical Oxygen Demand (COD)
- Biochemical Oxygen Demand (BOD)
- Carbonaceous BOD (CBOD)
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- pH
- Electrical Conductivity (EC)

For samples that require more comprehensive testing services, our "Fort Mac" lab acts as a hub to expedite the transfer of samples to other ALS Laboratory Group locations across Alberta, elsewhere in Canada, or around the world.

For more details, or to arrange for any of the above services please contact your Account Manager or contact the Fort McMurray lab directly.

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ALS Fort McMurray, AB

Eastern Canada

Amendments coming to Ontario Reg 153/04

By Richard Clara
Laboratory Manager, ALS Thunder Bay

Brownfields are underdeveloped or previously developed properties that may be contaminated. They are often, but not always, former industrial or commercial properties. To facilitate brownfield redevelopment, the province of Ontario enacted Ontario Regulation (O. Reg.) 153/04 (Records of Site Condition) where a Record of Site Condition (RSC) must be filed whenever property use changes to a more sensitive category (e.g. industrial to residential). On July 1, 2011, extensive amendments to O. Reg. 153/04 will come into effect.

In addition to technical amendments to the regulation, the Ministry is also amending the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act". When a Qualified Person collects samples for the purpose of O. Reg. 153/04, they must ensure that the laboratory conducting the analysis for the contaminant is doing so in accordance with this protocol or other analytical methods for which the laboratory has received written permission from the Director. The Protocol is intended to provide clear guidance in all aspects of the sampling and testing process, including sampling procedures and containers, holding times, preservation requirements, accepted analytical methods, and the reporting of results.

The intent of the protocol is to ensure that the highest-quality analytical test results are generated for decision-making purposes and regulatory assessments. The new amendments have been developed in consultation with the Ontario laboratory community, including representatives from ALS Waterloo. Some of the changes include:

- New parameters and standards – e.g. hexane, dichlorodifluoromethane, and trichlorofluoromethane have been added to the VOC list.
- New sampling and reporting requirements – For instance, trip blanks are required for all groundwater VOC testing. Field duplicates are required. All submitted samples on the COC must be reported.
- Groundwater – Field filtering of metals in groundwater is now a requirement.
- Methanol preservation is now required for VOCs in soils, either in the field or within 48 hours of sampling if hermetic soil samplers are used.

WebTrieve™ Online Standards Updated

To help facilitate the comparison of test results with the O.Reg 153/04 standards, ALS is pleased to announce that clients can now use WebTrieve™, our on-line data service, to compare analytical results to the July 27, 2009 standards as well as to the new July 1, 2011 standards. For clients who are not currently taking advantage of this unique service, we recommend a visit to our newly updated website to register:

https://webtrievena.alsenviro.com/loginpage.aspx

This service is available 24/7 from anywhere in the world with an internet connection. Remember – The new O.Reg.153/04 changes take effect on July 1, 2011.

For more information contact your nearest ALS Ontario location.

ALS Environmental

www.alsglobal.com

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