WBEA

WBEA@Work

AN UPDATE ON WBEA'S LATEST WORK
VOLUME 4 ISSUE 3, NOVEMBER 2014

Executive Director's Report

Dr. Kevin Percy

Since my August report, WBEA has been busy implementing our work plan as approved by members under the *Joint Oil Sands Monitoring Plan*. WBEA is no longer funded directly by our industry members, but rather receives quarterly funding allotments from the *Alberta Environmental Monitoring, Evaluation and Reporting Agency* ***(AEMERA),*** under the terms of the AEMERA-WBEA 2014/15 contract. A number of the highlights since my August report are listed below by program activity.

Ambient Air and Enhanced Deposition Monitoring

As of October 31st, WBEA is operating 17 air monitoring stations (AMS) located from Fort Chipewyan (AMS 8) in the north to Anzac (AMS 14) south of Fort McMurray. Continuous and time-integrated data were collected as usual. Two of these AMS, **Bertha Ganter-Fort McKay (AMS 1)** and **Wapasu (AMS 17)**, serve dual roles. They meet community or compliance needs and also serve as stations for enhanced deposition measurements conducted by Environment Canada, with analyzers and samplers serviced by WBEA technicians.

Two portable monitoring stations (Northern Lights and Niskitch) have been operating on industrial leases for compliance monitoring purposes. The **Human Exposure Monitoring Portable** station was re-located to the community of Anzac in September. Raw continuous data from all fixed and portable stations are publically available and updated hourly for each station at **www.wbea.org**. Quality assured data are finalized three weeks after month end and submitted to the **Clean Air Strategic Alliance.** In September, most of WBEA's AMS were externally audited by AEMERA. WBEA achieved a success rate of 97.4%, based on the audit of 77 analyzers and meteorological instruments.

The AMS 18 enhanced deposition station has been equipped and readied for deployment at the WBEA Field Operations Centre and will be installed at the Conklin Fire Tower site in early November.

Continued on next page...

WBEA members and staff toured WBEA's Bertha Ganter-Fort McKay air monitoring station during the Sept. 18th Annual Member's Open House.

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Executive Director's Report

WBEA has applied for a lease of occupation (LOC) to enable enhancement/upgrade of the existing Buffalo Viewpoint (AMS 4) (installed in 1977), to function as a joint attribution/enhanced deposition station by March 31, 2015.

WBEA staff continued to provide on-the-ground technical support for Environment Canada's BTEX, Hg, and PAH samplers located at 4 WBEA air monitoring stations.

In October, WBEA installed a wind profiler, pictured to the left of the air monitoring station, at AMS 17- Wapasu. A wind profiler is a type of weather observing equipment that uses sound waves (SODAR) to detect wind flow patterns and temperature. This equipment will assist WBEA and others to improve pollution dispersion modelling in our region through more accurate wind flow pattern data.

Deposition Monitoring

Under JOSM, WBEA's TEEM projects are funded within the JOSM Deposition Monitoring Element. Monthly change out by helicopter of the passive samplers for five air pollutants at the regional network of forest health/ecosystem sites was successfully completed. The seasonal change-out of ion exchange resin samplers, that measure deposition at forest health sites, was completed in early October. The remote, tall, solar-powered towers located at six forest health sites across the deposition zones continued to collect essential meteorological data for cause-effect determination. Four towers are equipped to measured deposition of nitrogen gases and particulate in the boreal forest.

Continued on next page...

WBEA members observed the change out of passive air pollution filters, situated on the tall meteorological tower at forest health site JP104, during the Member's Open House.

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Executive Director's Report

Three continuous ozone measurement systems were operating at remote locations to the E, SW, and SE of Fort McMurray. The WBEA Traditional Environmental Knowledge (TEK) project led by the Fort McKay Berry Focus Group completed the berry harvest, passive pollutant and weather data measurements at five regional berry patches. Analysis of the berries is underway. A TEK Working Group was formed and is functioning to identify future projects.

Human Exposure Monitoring

- Thirty-seven Fort McMurray residents have volunteered to monitor and report odours during the second year of WBEA's **Community Odour Monitoring Project**. In the first quarter of the second year, 139 odour observations have been reported. HEMP has endorsed the operation of the COMP in Anzac in 2015/2016.
- The Human Exposure Monitoring Program's Portable Air Monitoring Station is now steaming data for odour causing compounds from its location in Anzac, pictured, to our website. View the data at **www.wbea.org - Monitoring Stations and Data - Portable AMS - HEMP**.
- HEMP's specialized analyzers which characterize odours and report odour units continue to operate at the Bertha Ganter-Fort McKay air monitoring station and in the HEMP Portable Station in Anzac.

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Executive Director's Report

Science Interchange

WBEA was well represented at the recent Air and Waste Management Association - Canadian Prairie and Northern Section jointly organized North America Oil and Gas Conference, which was held on October 21-22, 2014 in Calgary.

WBEA-funded monitoring work was presented in the following papers:

- *Windblown Fugitive Dust Characterization in the Athabasca Oil Sands Region.* Judith C. Chow, Research Professor, Desert Research Institute, NV, USA.
- *Community Odour Monitoring Project: Describing Odour Exposures in Fort McMurray, Alberta.* Thierry Pagé, President, Odotech Inc., QC, Canada.
- *Volatile Organic Compound (VOC) Passive Monitoring in Athabasca Oil Sands Region, Alberta, Canada.* Barbara Zielinska, Research Professor, Desert Research Institute, NV, USA.
- *Real-World Emissions from Heavy Haulers in Alberta Oil Sands Mining.* John G. Watson, Research Professor, Desert Research Institute, NV, USA.
- *PAH Measurement in the Athabasca Oil Sands Region.* Yu-Mei Hsu, Atmospheric and Analytic Chemist, Wood Buffalo Environmental Association, AB, Canada.

The presentations will be available for Members to view on the WBEA website shortly.

WBEA representatives at the Calgary Canadian Prairie and Northern Section Symposium included, from left to right, WBEA President, Diane Phillips, and Science Advisor, Dr. Allan Legge, and from the Desert Research Institute, NV, USA, Research Professors and presenters Dr. Judith Chow, Dr. Barbara Zielinska, and Dr. John G. Watson.

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Executive Director's Report

Communications and Outreach

Communications initiatives over the past few months have included:

- Completion of the Human Exposure Monitoring Program's **Community Odour Monitoring Program vignette**. English, Cree and Dene versions are available on our website and on **WBEA's YouTube channel**.
- Redesign of WBEA's website is underway. The new website will include an interactive monitoring map showcasing WBEA's various monitoring sites in the region including Continuous Air Monitoring Stations, Passive Monitoring Sites, Forest Health Sites, Meteorology Towers and Early Warning Edge Plots.
- Design and installation of wraps for the Bertha Ganter-Fort McKay Air Monitoring Station, the HEMP Portable and the Mahikan (Wolf) Portable.
- Hosting WBEA booths at the Fort McMurray Fall Trade Show, Sept. 19-21; Emerald Day in Fort McMurray, Oct. 2; the North American Oil and Gas Conference, Calgary, Oct. 21-22.
- Coordinating meetings, tours and presentations with the following groups: Fort McMurray First Nation 468; Fort McMurray Métis; WBEA Members; Chipewyan Prairie Dene First Nation; European Union Energy Study Mission, pictured.
- Design of a WBEA Southern Monitoring Plan Factsheet.
- Discussing and developing work plans and associated budgets for 2015-2016 with AEMERA Communications/ Engagement CAC.

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

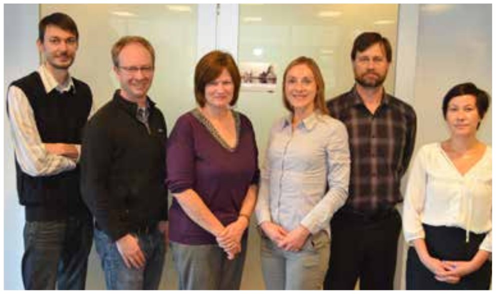
Website:www.wbea.org

Continued from previous page...

Executive Director's Report

Governance and External Partnerships

The WBEA Board met as scheduled at quarterly General Members Meeting. The Governance Committee met as required in September and October. In November, the GC met in Calgary and is expected to convene in Calgary or Edmonton as decided, periodically in 2015. The AATC started its monthly meetings again in September, HEMP met in August and November and TEEM is meeting at the end of November. WBEA began engaging in the JOSM process again in August as AEMERA and EC work towards approved monitoring plans for 2015/16.



WBEA's Governance Committee (l to r) Director Andrew Read, Pembina Institute for Appropriate Development, Vice-President Peter Fortna, Conklin Resource Development Advisory Board, President Diane Phillips, Syncrude Canada Ltd., Director Linda Aidnell, Chipewyan Prairie Dene First Nation, Secretary-Treasurer Doug Johnson, Athabasca Oil Corp., and Director Natasha Rowden, MEG Energy. Missing from the photo is Director Michael Aiton, Alberta Environment & Sustainable Resource Development.

Safety

WBEA was awarded the **Certificate of Recognition (COR)** status after an external audit of the WBEA Health and Safety program was conducted in September. A Certificate of Recognition (COR) is awarded to employers who develop health and safety programs that meet established provincial standards. Among WBEA's Health and Safety program strengths it was noted by the auditor that 'all employees truly embrace the safety culture of WBEA.' Thanks to WBEA's Safety Coordinator, Sue Brown, for her leadership throughout the COR Certification process.

As winter approaches, I invite all to remain safe in their travels!

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

AN UPDATE ON WBEA'S LATEST WORK
VOLUME 4 ISSUE 3, NOVEMBER 2014

Windblown Fugitive Dust Characterization in the Oil Sands Region

John G. Watson, Judith C. Chow, Steven D. Kohl, Laxmi Narasimha R. Yatavelli, and Xiaoliang Wang
Division of Atmospheric Sciences, Desert Research Institute, Reno, NV, USA

Fugitive dust is an important source of ambient particulate matter (PM) in Alberta, Canada, including the Athabasca Oil Sands Region (AOSR). Large dust plumes (Figure 1) are often visible when wind speeds are high and when vehicles are moving over dusty surfaces. Environment Canada estimates that fugitive dust from paved and unpaved roads, construction sites, agriculture tilling, landfills, mine tailings, application of de-icing materials, and general wind erosion contribute more than 80% of PM_{10} and $PM_{2.5}$ criteria contaminant emissions nationwide, with higher amounts in regions such as the AOSR. PM_{10} and $PM_{2.5}$ contain particles with diameters less than 10 and 2.5 microns, respectively, that can penetrate into the lungs and aggravate respiratory and cardiovascular health. One micron, a millionth of a meter, is about 1/50th the diameter of a human hair.

Fugitive dust is more than just a nuisance. Extended exposure to elevated dust levels can cause adverse health effects, particularly if the dust contains crystalline silica, asbestos fibers, heavy metals, disease spores, allergens, and other toxins. Wind erosion can remove topsoil from farm lands and deposit the dust on foliage, thereby reducing agricultural yields. Dust deposition on traditional food sources of Aboriginal communities, such as blueberries, may reduce product quantity and quality. Dust plumes impair visibility, cause mechanical wear of machinery, and lead to traffic accidents.

Continued on next page...

Figure 1. Visible windblown fugitive dust plumes at an oil sands mining site (Photo courtesy of Dr. Allan Legge).

IN THIS ISSUE

WBEA@Work *is a publication of the* Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.

Please contact Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420

Website:www.wbea.org

AN UPDATE ON WBEA'S LATEST WORK
VOLUME 4 ISSUE 3, NOVEMBER 2014

Continued from previous page...

Windblown Fugitive Dust Characterization in the Oil Sands Region

Fugitive dust emissions result from windblown and mechanical suspension processes. Windblown dusts are created by the action of turbulent air currents on erodible surfaces when wind speeds exceed threshold velocities for particle suspension. Mechanically generated dusts are caused by pulverization and abrasion of surface materials by application of mechanical force through disturbances such as vehicle traffic, mining, mineral processing, rock crushing, and farming operations. The amount of dust injected into the atmosphere depends on the surface properties, the reservoir of erodible material, the size distribution of the dust granules, and the suspension forces (e.g., wind speed at the surface or mechanical action, such as tires interacting with a road surface). These variables take on a large range of values, even for the same parent material. Undisturbed surfaces develop vegetation or crusts that are more resistant to wind speed and have smaller reservoirs of suspendable material. Disturbed surfaces, such as those in agricultural fields and unpaved roads, contain smaller particles and larger reservoirs.

Processes for fugitive dust emission, transport, and deposition are poorly characterized. Although initial emission rates are large, much suspended dust re-deposits close to the source, with larger (>10 microns) particles falling out more rapidly than smaller (<2.5 micron) particles, therefore the need to understand the sizes of erodible particles. Dust tracked out of unpaved areas onto paved surfaces is often a greater contributor to what people breathe because it is continually ground into smaller particles and carried by vehicle-wakes far from the trackout point.

As part of a larger study to better characterize emissions in the AOSR, the Wood Buffalo Environmental Association (WBEA) funded the Desert Research Institute (DRI) of the Nevada System of Higher Education to quantify dust suspension properties for a wide variety of fugitive dust emitters. Geological materials were collected from 27 locations in the Regional Municipality of Wood Buffalo during 2008 and 2009 to determine their chemical fingerprints. These samples were air dried in the laboratory, resuspended in a chamber, collected on filter media, and submitted for chemical speciation. Analyses revealed different source fingerprints, such as those in Figure 2, which can be used to attribute ambient concentrations to their sources. A follow-up study applied a portable wind-tunnel to obtain additional chemical profiles along with information on the other important parameters: dust reservoir, particle size, and threshold wind speed. These tests were more specific to mining and quarry operations, and major dust sources near the communities of Fort McMurray and Fort McKay.

A large wind tunnel, such as that illustrated in Figure 3, has been used in the past to measure surface properties, but this is costly and inconvenient. A new device, the *P*ortable *I*n-*S*itu *W*ind *E*rosion *L*aboratory (PI-SWERL, Figure 3) was applied in this study using the configuration shown in Figure 4. A blade in the PI-SWERL rotates at increasing revolutions per minute to simulate different wind speeds at the surface. Dust particles are removed from the surface by shear stress, and their concentrations are monitored in real time. Particles are also collected on filters for offline chemical analyses

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Windblown Fugitive Dust Characterization in the Oil Sands Region

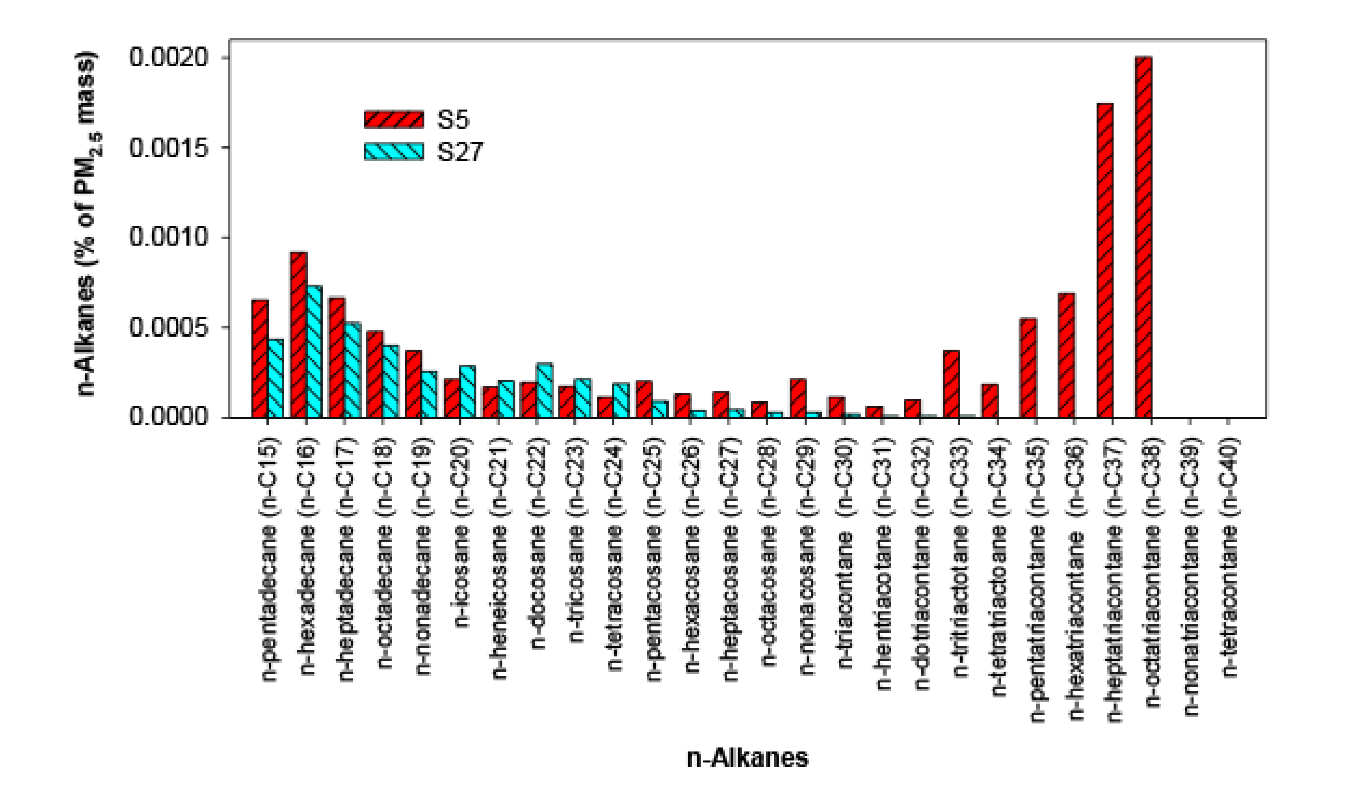


Figure 2. Comparison of $PM_{2.5}$ fugitive dust chemical source profiles from a mine haul road (S5) and bare forest ground (S27) for n-alkanes, common organic components found in soils, bitumen, and ambient air. Haul road dust contains larger abundances of C15-17 and C35-C37 compounds, and smaller abundances for C22-C28 compounds. For the forest soil, n-alkanes are most abundant for the C15-C26 compounds, with high molecular weight n-alkanes near or lower than the detection limits. Contributions from these sources would be easily distinguished from each other at receptors.

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Windblown Fugitive Dust Characterization in the Oil Sands Region

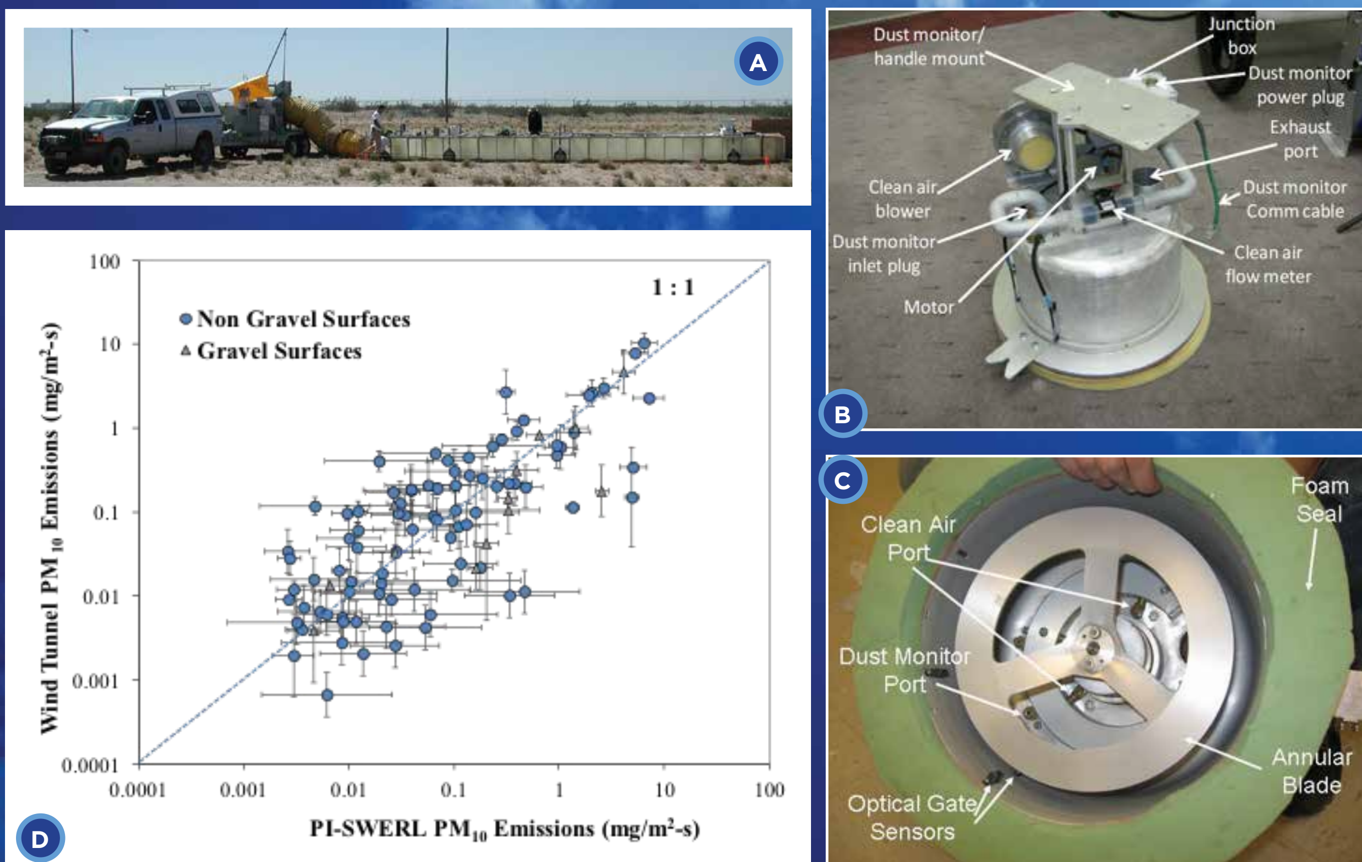


Figure 3. Wind tunnels to determine suspension properties and emission factors for different soil surfaces: a) University of Guelph wind tunnel collocated with PI-SWERL; b) the PI-SWERL portable wind tunnel; c) the PI-SWERL rotating blade that creates a variable shear wind force over the soil surface; and d) a comparison between PM_{10} emission factors from the large wind tunnel and the PI-SWERL.

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Windblown Fugitive Dust Characterization in the Oil Sands Region

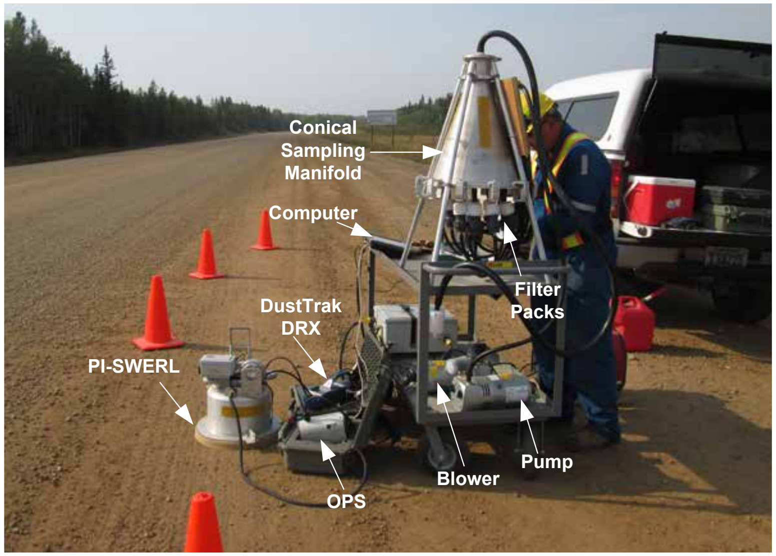


Figure 4. Unpaved road dust sampling with the PI-SWIRL and various monitoring devices. The DustTrak and Optical Particle Sizer (OPS) quantify the mass of dust and the particle size distribution, respectively, as a function of surface wind speed generated by a variable-speed blade within the PI-SWERL enclosure. Part of the suspended dust is sampled onto filters for laboratory characterization of the source profile.

to obtain the source profiles (Figure 2). Dust reservoirs are classified as limited for stable surfaces and unlimited for unstable surfaces. Without replenishment, dust supply from a limited reservoir is depleted after the removal of loose surface soil, while an unlimited reservoir can constantly supply dust. Threshold velocity is the wind speed above which erosion starts. Emission potentials are the amount of PM that can be generated after exposure to different wind speeds.

Figure 5 compares emission rates from the fugitive dust sources that were most and least susceptible to wind erosion. All of the test sites had limited dust reservoirs at lower wind speeds (< 16 km/h), while many sites had unlimited dust supplies at the highest wind speeds (56 km/h). The threshold wind speed to initiate dust suspension ranged from 11 to 22 km/h, and the lower thresholds were associated with the more disturbed surfaces, such as heavy hauler roads. The lowest emitting surfaces were paved roads and stabilized or treated (e.g., watered) surfaces with limited dust reservoirs. The highest dust emitting surfaces were unpaved roads, parking lots, and bare land with loose clay and silt materials resulting from frequent mechanical disturbances. Figure 6 compares examples of these surfaces, showing that

Continued on next page...

IN THIS ISSUE

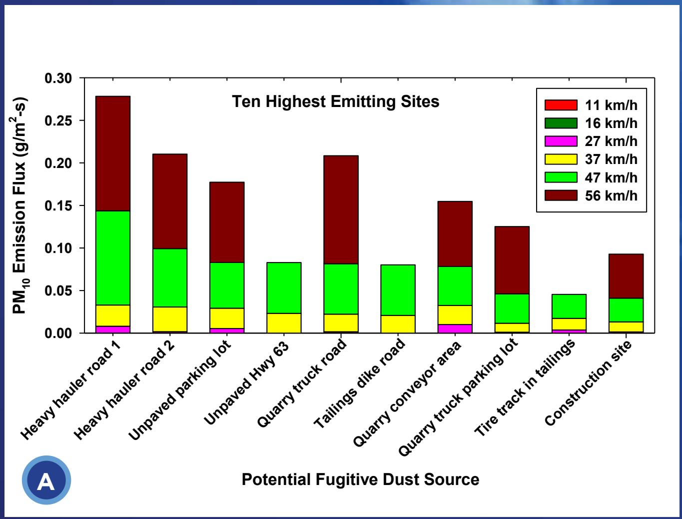
WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Windblown Fugitive Dust Characterization in the Oil Sands Region



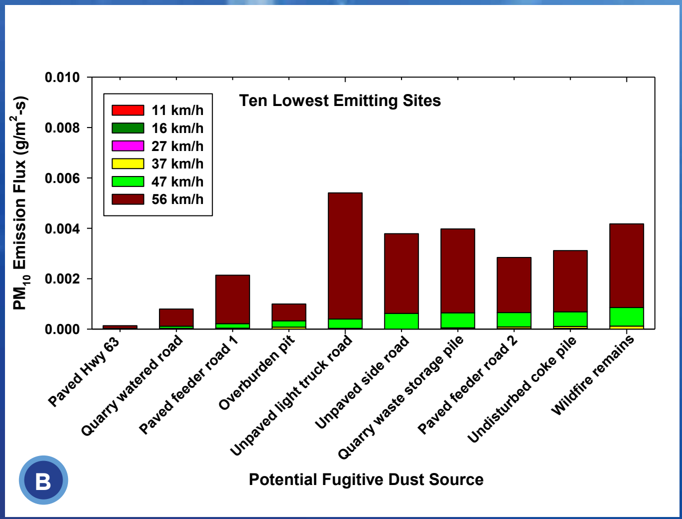


Figure 5. Emission rates from different surfaces as a function of wind speed for: a) the ten highest-emitting surfaces; and b) the ten lowest emitting surfaces tested in the AOSR.

heavier use replenishes the more suspendable loose clay and silt materials. Differences in soil texture at these two sites caused the significantly different potential emission fluxes. Surface disturbances by traffic or other activities pulverize and abrade materials, increasing PM_{10} emission potentials 9-160 times. However, surface watering proved effective in reducing dust emissions, with potential emission reductions of 50-99%. Therefore, both minimizing surface disturbance and applying stabilizers such as water or chemical suppressants are effective in reducing windblown dust.

Chemical profiles of the fugitive dust were dominated by minerals, as indicated by important amounts of aluminum, silicon, calcium, potassium, iron, and titanium. When converted to their common oxide forms, minerals accounted for the majority of the PM mass, with similar compositions in most of the samples. Silicon, usually associated with quartz, was the most abundant component. Organic material was the most variable component, and detailed analyses of individual compounds, as illustrated in Figure 2,

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

Continued from previous page...

Windblown Fugitive Dust Characterization in the Oil Sands Region

Figure 6. Two different unpaved surfaces show large variation in fugitive dust emission potential for: a) a heavy hauler road, the first stacked bar in Figure 5a; and b) a lightly traveled unpaved road without heavy vehicles, the fifth stack bar in Figure 5b. Note the smaller particle sizes of silt and clay in Figure 6a. The ring was created by the PI-SWERL.

provides the greatest source profile distinction among the different fugitive dust sources. Tested surfaces in and around oil sands mining facilities contained higher abundances of sulphur, sulphate, aluminum (associated with clay and silt), as well as organic markers.

Results from these tests are necessary, but insufficient, to estimate fugitive dust emissions for the AOSR. Average emission fluxes and size distributions, with their uncertainties, need to be associated with land use maps of the different soil types and activities for the region. These then need to be coupled with meteorological models and ambient measurements that estimate surface wind speeds over these surfaces. When applied to high wind episodes, this will allow source oriented air quality models to estimate concentrations at different receptors, including WBEA's air quality network. Another approach is to measure the source markers at the monitoring stations, then use receptor modeling approaches, as previously described in the publication **WBEA@Work (3rd Quarter, 2011)** to infer contributions from specific fugitive dust and other emitters.

This study shows that while dust suppression measures currently in place are effective, further dust control efforts can focus on those sources with the highest potential for contributing to excessive ambient concentrations. The effectiveness of additional dust suppressants, such as polymer stabilizers, can be evaluated using the methods developed for this study.

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

W B E A

AN UPDATE ON WBEA'S LATEST WORK
VOLUME 4 ISSUE 3, NOVEMBER 2014

WBEA Members View Operation's at Annual Open House and Tour

Jane Percy, WBEA Communications

On September 18th, WBEA members toured sites in WBEA's regional monitoring network during the annual Member's Open House. Following a welcome from Executive Director, Dr. Kevin Percy, at WBEA headquarters, members boarded a bus for the trip north on Highway 63.

At the first stop in the community of Fort McKay, at WBEA's Bertha Ganter-Fort McKay air monitoring station, Jean-Guy Zakrevsky, Air and Terrestrial Program Manager, welcomed members and provided an overview of WBEA's monitoring network. Senior Air Quality Specialist, Gary Cross, delivered a detailed analysis of air monitoring capacity. Members viewed air analyzers in operation, as well as WBEA's data capture and transmission systems, quality assurance measures and air analyzer remote troubleshooting.

Zach Eastman, Air Quality Technician, explained the purpose and function of the samplers located on the outside deck, pictured, including samplers for particulate

matter, polycyclic aromatic hydrocarbons (PAH), volatile organic compounds and precipitation. Zach demonstrated a filter change on the PUF sampler which measures PAH in ambient air. Sampling occurs every six days and data are reported to WBEA and the Environment Canada National Air Pollution Surveillance (NAPS) network. (www.eg.gc.ca/air-sc-r)

Human Exposure Monitoring Program Manager, Abena Twumasi-Smith, spoke to members about WBEA's odour monitoring program, including the results of the first year of the Fort McMurray-based

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org

AN UPDATE ON WBEA'S LATEST WORK
VOLUME 4 ISSUE 3, NOVEMBER 2014

Continued from previous page...

WBEA Members View Operation's at Annual Open House and Tour

Community Odour Monitoring Project. Also in the station, members viewed the Pneumatically Focused Gas Chromatograph (PFGC), which simultaneously detects volatile organic compounds (VOCs) and certain sulphur compounds, and the Electronic Nose, which measures odour units.

A specialized analysis of air quality being conducted by the Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) at the Bertha Ganter-Fort McKay station using a Fourier Transform Infrared Spectrometer was also of interest.

Members next visited the Terrestrial Environmental Effects Monitoring forest health plot, JP104, off the Athabasca Highway. After they enjoyed a picnic lunch in the jack pine/lichen landscape, Kevin Percy spoke of WBEA's network of co-measurement towers designed to continuously measure meteorology and air pollutants in order to relate changes measured in forest health indicators to causal agents, pictured.

WBEA's passive air monitoring and forest health monitoring, which provides information about soil components and microbiology, plant diversity, productivity and health status, were also discussed. WBEA technicians Natalie Bonnell, Evan Magill and Asad Hidayat demonstrated how the passive filters at the tower are changed. One of the WBEA-Fort McKay Berry Focus Group berry patches, located at JP104 and also equipped with passive monitors, was viewed.

Members then headed to WBEA's Field Operations Center (FOC) at TaigaNova Eco-Industrial Park. This facility, a combination of offices, instrument labs and mobile/portable station servicing bays, serves as the headquarters for air quality and terrestrial monitoring field operations.

Kelly Baragar, Senior Air Specialist, WBEA, provided a tour of the Instrument Lab where analyzers are repaired and calibrated and available for switch-out at any station where they might be needed.

Continued on next page...

IN THIS ISSUE

WBEA@Work *is a publication of the* Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.

Please contact Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420

Website:www.wbea.org

Continued from previous page...

WBEA Members View Operation's at Annual Open House and Tour

In the FOC main bay, Kelly explained the process of setting up new stationary and portable air monitoring stations. Members were able to view the new station for Conklin, which is being prepared for deployment later this year as an enhanced site under the *Joint Canada/Alberta Oil Sands Monitoring Implementation Plan (JOSM)*.

Kelly also provided a short presentation on access to and operation of the WBEA Data Management System (DMS) and recent new initiatives such as digitization of TEEM data sheets and streaming of Environment Canada mercury and VOC data from the Patricia McInnis air monitoring station.

Dr. Percy commented that it was great to be able to provide members with a firsthand look at WBEA's enhanced, integrated monitoring programs, which their support over the past years had made possible, during the Member's Open House. "Thanks to our member's support and guidance and WBEA's science expertise, a high quality environmental monitoring and reporting system is operational in the Regional Municipality of Wood Buffalo," he stated. "WBEA's qualified and skilled staff have also been instrumental in the implementation of our member's vision."

From left to right: At the JP 104 meteorological tower, WBEA technicians Evan Magill and Asad Hidayat and WBEA President Diane Phillips view the batteries which store power from the tower's solar panels. This power allows tower data to be streamed to the WBEA database using cell or satellite uplinks.

IN THIS ISSUE

WBEA@Work *is a publication of the* **Wood Buffalo Environmental Association, #100-330 Thickwood Blvd., Fort McMurray, AB.**

Please contact **Jane Percy, WBEA Communications, with questions, comments, or suggestions. jpercy@wbea.org 780-799-4420**

Website:www.wbea.org