

Minutes of WCMUC's twice-yearly meeting; May 27, 2010.

Meeting location:

Red Deer Community College, Red Deer, AB, Canada. Thanks to the College and Central Labs for providing room and internet link.

Attendees. Seven representatives of WCMUC member companies were present; also Irene Gaudet (AITF, formerly ARC, Vegreville), chairman Ansar Qureshi and, on speakerphone, Cary Morris from SDI, Inc. Our treasurer Anthony Neumann sent regrets.

1. The meeting was called to order by Ansar Qureshi at 10:10 a.m. and all present introduced themselves. The day's Agenda was approved.
2. The Minutes of the previous meeting (Nov 19, 2009) were approved.

Matters arising

- Drilling waste disposal Directive D 50 is expected to be released in 2010.
- Ansar, George Ruddock and John Ashworth agreed to meet in June to discuss the format, venue, target audience and costs of a training workshop in conjunction with the next WCMUC meeting.
- Mitch Golay requested that an opened-up Model 500 be on display at the workshop.

3. New business

- Various lab representatives agreed that *Vibrio* reagent quality and vacuum sealing of vials had improved lately, but that 1 or 2 vials in a box of ten were still apt to show hormesis and/or insufficient light output within an hour of reconstitution.
- Regarding Model 500 well-temperature confidence limits; in separate correspondence, Anthony had suggested that thermometer readings for all cuvettes + fluid in the 30-well cooling block should indicate essentially the same value, preferably within 1 °C of the 15 °C target. (The wells are all drilled in a one-piece metal block.)
- On behalf of SDI, Cary advised that labs do not have the equipment required to ensure that the Model 500 cooling block circuit is operating correctly. Ansar requested that SDI provide a one-page summary on the topic.
- George advised that Osprey Scientific can lend a replacement Model 500 while any repairs are done in California.

- Presentation from Osprey Scientific.

Aaron MacDonald gave a presentation describing the new model DeltaTox machine. Like the Model 500 it uses *Vibrio* light output but functions at ambient temperature and is portable. The machine comes in a hard case and is robust. BTOX and QTOX results are presented as % Effect. Data can be downloaded to PC (slide print-out provided separately).

The ATP measurement uses luciferase enzyme and involves a photon count. Cary added that single digit readings indicate background activity but that readings of the order of a million indicate microbial contamination.

4. WCMUC Round-Robin (RR) No. 42. Results were presented by Irene Gaudet who also provided separate data summaries. A general concern was the wide disagreement in reported pH and optical absorbance data for some of the test fluids.

Sample 1 was a phenol solution (80 mg/L) plus Allura Red dye provided by ALS. John regretted that his phenol concentration was too high and the dye concentration (19 mg/L) too low for colour-correction to have had a large effect.

Assuming $EC_{50}(5) = 19 \text{ mg/L}$, after colour-correction the target $EC_{50}(5)$ would be $100 \times 19 / 80 = 24 \%$; the mean colour-corrected value observed in the RR was 23 % (with $RSD < 20 \%$) despite reported Abs values ranging from 0.2 - 1.2 (expected undiluted Abs at 490 nm = 0.85).

Sample 2 was straight phenol (121 mg/L). The expected $EC_{50}(5)$ would be $100 \times 19 / 121 = 16 \%$ whereas the mean reported value was 18 %. Several labs mistakenly reported colour-corrected values for this colourless test fluid.

Sample 3 was potassium dichromate solution (152 mg/L of Cr^{6+}). Reported absorbances at 490 nm were all 0.1 - 0.3 so that colour-correction had little effect. The mean (uncorrected) $EC_{50}(15)$ value was 38 mg/L.

RR No. 43 sample shipping dates will be Sept. 20 & 22, with results to be reported by Oct. 15, 2010 – Irene to put details on WCMUC website.

Various test-sample types were suggested, e.g. a bactericide, a textile waste, dyed phenol again, municipal wastewater, reservoir samples and zinc sulphate. A charcoal treatment was deemed inappropriate as not being part of our overseas labs' protocols and likely to provide > 100 % results not amenable to statistical analysis.

In view of the widely differing Abs data for RR 42 sample 1, Irene agreed to ask all labs to report optical absorbance of (any coloured) as-received fluids at 490 nm in a 1 cm cell.

Irene advised that our contract is with AITF (formerly ARC); the next RR will be done at the same fee as RR # 42.

5. Treasurer's Report (separate balance sheet provided by Anthony)

WCMUC's current balance is just over \$ 3,000 (Cdn.), enough to cover the costs of the next RR.

Irene advised that \$295 is due to Vitrak for website maintenance.

John is to remind Anthony to send invoices to members owing dues. There are some new members but some existing ones have dropped out, perhaps due to cost-cutting.

Mitch commented that WCMUC round robins provide much better feedback than CALA and are extremely good value for the \$500 fee.

6. Other business

Mitch warned of the risk of gel-chem wastes failing due to contamination (avoidable using proper on-site practices) with invert (oil-based) muds during drilling operations.

There was some discussion of 1:1 extracts, gelling samples and mud additive threshold values. EC50 values for 1:1 extracts are reported directly with no back-calculation adjustment, whereas if dilution is needed to avoid gelling at the higher concentrations tested, the EC50 obtained must be divided by the dilution factor used before being reported. The formula $L/m^3 = 6 \times EC50(15)$ is valid for threshold rates of soluble mud additives, but not for insoluble ones.

Date and place of next WCMUC meeting.

Thursday Nov. 18th [originally Sharon Lu offered Epcor, but at the time of writing the location is to be decided subject to outcome of discussions on the possible workshop, see above]

Meeting adjourned at 2:40 p.m.