

email from J Skorupa 10-29-2009

From: Joseph_Skorupa@fws.gov
Sent: Thursday, October 29, 2009 4:30 PM
To: Wilson.Christina@epamail.epa.gov
Cc: Blackburn.Robyn@epamail.epa.gov; Dayvault, Jalena; Sheader, Linda;
Rik Ombach; Scott Everett; Bartlett, Timothy
Subject: RE: proposed BTAG date

Attachments: Se review paper 8-18-09 with appendices.pdf

Hello again everyone,

The main purpose of this email is to transmit the draft EPA Science Panel review for the Kingston Fossil Plant coal ash spill in Tennessee (as promised) which includes a set of tiered monitoring strategy trigger values for Se (see Table 3 in attached file) that I think are more in line with current Se ecorisk science than the Monticello ROD trigger values. Dale Hoff was one of the members of EPA's Science Panel.

In addition, I thought I'd just think out loud (always a dangerous idea) a little bit and if it's helpful at all, great, if not, then just ignore it.

I always think of clean-up actions as being directed by what the clean-up goals are. In an ideal world, the clean-up goals are usually set based on some sort of consensus regarding what is "safe" and then a monitoring plan is devised to document when the clean-up goals of "safe" have been achieved.

For whatever it's worth, a dietary exposure of 7 ppm Se is the EC35 for embryotoxicity (hatching failure of full-term incubated eggs) among mallard ducks. Mallard ducks are commonly used as the model species for assessing bird risk because their above average sensitivity to Se is thought to provide reasonable protection for study sites that could ultimately be used by a broad, and temporally varying, range of bird species over a 50 to 100 year time horizon. The mallard dietary EC10 is 4.87 ppm (Ohlendorf 2003) and that's the trigger value EPA's Science Panel goes with in their Table 3. If your Monticello clean-up goal is to achieve a "safe" environment, lowering your macroinvertebrate trigger from 7 ppm to 4.87 ppm would be more consistent with current science and then your 2008 results for macroinvertebrates at Wetland 3 would be sufficient to trigger collection of bird egg data.

I guess I think what I may have heard is that there is some question as to whether the pre-project, or pre-action, baseline was actually at safe levels, and if not, shouldn't the clean-up goal be simply to "restore" the environment to the pre-project, or pre-action baseline? If that's what your clean-up goal is, then your tiered monitoring triggers don't have to be toxicologically based at all and you really don't need to consult with a Se toxicologist like me. Instead you need to develop a defensible case for what that baseline was and focus on a monitoring program that will meet some minimum statistical confidence for establishing when you are back to baseline. If those baseline conditions are in violation of MBTA, it would be FWS' responsibility to determine whether there is an identifiable responsible party or parties for the high baseline (for example, who built the Mancos Shale dam at Lloyd's Lake?) and whether the magnitude of any MBTA violations would be substantive enough to allocate limited FWS law enforcement resources to an MBTA prosecution (one of the reasons FWS is going down the MBTA path at the Great Salt Lake is because there are millions and millions of migratory birds that use the Great Salt Lake, i.e., there is an astounding migratory bird resource at stake). If the baseline is "natural", then there will not be any identifiable responsible party. If there did turn out to be an identifiable responsible party or parties and if there were a prosecution initiated, then the responsible party could always raise a defense that local bird populations were adapted or acclimated to high Se levels and not harmed by such high baseline exposures. In turn, that might stimulate the empirical proving or disproving of the science for such a defense (such as collecting on-site mallard eggs and artificially incubating them to see if in fact

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their hatchability is more tolerant of Se exposure than eggs from game farm mallards). However, currently, such a defense would not be based on any proven science (and for birds, what fragmentary anecdotal evidence as exists does not suggest such a defense would be successful upon actual designed testing; however, such a designed test would be the real proof one way or the other).

Citation:

Ohlendorf, H.M. 2003. Ecotoxicology of selenium. Pp. 465-500 in: D.J. Hoffman, B.A. Rattner, G.A. Burton, Jr., and J. Cairns, Jr. (eds), Handbook of Ecotoxicology, 2nd Edition. Lewis Publishers, Boca Raton, FL.

Best Regards,

Joe

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10/22/2009 11:14 AM To
"Dayvault, Jalena" <Jalena.Dayvault@lm.doe.gov> cc "Dayvault, Jalena"
<Jalena.Dayvault@lm.doe.gov>, Joseph_Skorupa@fws.gov, "Shedder, Linda"
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RE: proposed BTAG date

Here is an informal agenda for our call next Thursday:

Historical Documents Review and Implications on Current Biomonitoring Strategy

Geometric Mean/Review of Biomonitoring Data Evaluation Strategy

Summary of Current Biomonitoring Results and potential for wildlife effects discussion

Options for Biomonitoring Sampling Strategy