

## Richard Dwyer

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**From:** Steve Lines [slines@envireview.ca]  
**Sent:** Thursday, January 28, 2010 2:34 PM  
**To:** 'Richard Dwyer'; 'Wilson, Anne [Yel]'  
**Cc:** 'David Hohnstein'; 'Karlette Tunaley'  
**Subject:** RE: Meadowbank Water & Mine Waste Management Plans

Hi Anne,

I believe I understand the question and I spoke with Karlette as well on this. We recall the idea around F16(d) "protocol for distinguishing seepage through facilities" to be a response to a need to understand the origins of potentially contaminated seepage/runoff going into the collection ponds from the RSF or other facilities such as the landfill. The idea was that if a water quality problem were to arise the source of the problem could be identified and managed through monitoring specific seepage locations

Going back to the final hearing submission, this was also an issue identified by INAC:

INAC recommends that the Meadowbank Gold Project's Water Licence contain a condition regarding the monitoring of seepage and sumps around the rock dump specifically focused on monitoring for the development of leachate from the landfill(s). This should include monitoring near the construction landfill and the operations landfill. The demolition landfill will likely be the second operations landfill prior to closure. If this is not the case, additional monitoring locations should be identified by AEM prior to closure activities. (pg 7-8)

In INAC's comments on the F16 Water Management Plan they stated:

A protocol for distinguishing seepage through facilities has not been provided as required by License condition Part F, Item #16 (d). AEM must revise this plan to include a protocol that complements their May 2009 Water Quality Flow and Monitoring Plan and the Part I, Item #8 and 15 License conditions (they address seepage monitoring). Furthermore, the locations of all proposed (i.e., Table 2 of License, ST-S-1 to TBD) and internal monitoring locations must be referenced in a diagram/schematic; (pg 3).

I think that because it was a specific requirement of the Licence, the protocol should be included in the Mine Waste and Water Management Plan and not just cross-referenced. The protocol is not extensive and there will not be too much duplication by having it in both Plans. Although, it might require an additional page to satisfy the information and reference diagram that INAC is asking for, which may be helpful.

If that does not answer your question or if there's anything else please let me know.

Steve Lines

Stephen Lines M.Sc., P.Biol., DEIA  
Tunaley, Lines & Associates

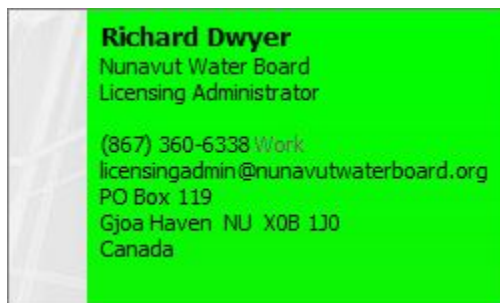
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**From:** Richard Dwyer [mailto:licensingadmin@nunavutwaterboard.org]  
**Sent:** Thursday, January 28, 2010 8:41 AM  
**To:** 'Steve Lines'  
**Cc:** David Hohnstein  
**Subject:** FW: Meadowbank Water & Mine Waste Management Plans

Hi Steve;

Please see below I cannot answer this.

Regards,



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**From:** Wilson, Anne [Yel] [mailto:Anne.Wilson@EC.GC.CA]  
**Sent:** Wednesday, January 27, 2010 5:17 PM  
**To:** Richard Dwyer  
**Cc:** Groskopf, Glenn [Reg]; Stéphane Robert  
**Subject:** RE: Meadowbank Water & Mine Waste Management Plans

Hi Richard,

I was speaking with Stephane earlier in respect of clarification of some of EC's comments on the Water Management Plan. With respect to seepage, the licence has the clause:

*F.16.d. A protocol for distinguishing Seepage through facilities*

It was put into the licence based on one of EC's recommendations:

*Excerpt from the Water Licence Reasons for Decision:*

*Waste Rock and Tailings Cover: The Board agrees with EC that the management of tailings and waste rock from the mine is critical to the long term impact of the Project. 101 As discussed by EC, a key component to this is the establishment of a waste rock segregation protocol and routine audit to confirm that the rules for segregating rock are working. 102 The Board agrees this is essential to ensuring that rock that is potentially acid generating or metal leaching is properly disposed of, and that cover rock is effective. The Board also agrees with EC that till rock should be characterized to determine if it will generate acid rock drainage. Accordingly, the Board requires AEM to submit to the Board for review and approval within 6 months of the Licence approval, a revised Mine Waste and Water Management Plan that includes a protocol for segregating rock, confirming the segregation rules, monitoring till rock for acid drainage potential, and a protocol for distinguishing seepage through facilities.*

In EC's letter of Dec. 10th the comment was made that

*Item F.16.d. is not explicitly addressed, although seepage as a general category is discussed with respect to monitoring and management.*

Discussion with Stephane this morning brought out the need for some clarification of the intent of the seepage comments shown above. I spoke with EC's mining expert, Glenn Groskopf, and confirmed the intent was to look at the quality of drainage coming from waste rock piles, so that the pile monitoring was acting as a "real life" leach pad. The monitoring of seepage water or in-pile pore water may indicate if segregation practices are sufficient to be protective as predicted (i.e. confirm that the mine rock is benign). Waste rock is segregated based on the potential for acid generation, as described in the Operational ARD-ML Sampling and Testing Plan.

Section 5 of the ARD plan discusses periodic audits that would be done to confirm the adequacy of segregation measures. The ARD plan mentions (page 29) that monitoring details are covered in other plans (Water Quality and Flow Monitoring Plan; Meadowbank Project Monitoring Plan). The Water Quality and Flow Monitoring Plan includes a section on seep characterization (3.1.2.6 on page 32) as required for licence monitoring (Part I Sections 8 & 15).

Bottom line:

The monitoring of seepage being done does address the requirement of clause F.16.d.

The licence specifies this be included under the Mine Waste and Water Management Plan.

Can this be addressed by simply referring the reader to the Water Quality and Flow Monitoring Plan?

It took me a bit of looking through the various plans, which highlighted the extensive work being done - it is a little difficult to keep track of it all!

Anne

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**From:** Wilson, Anne [Yel]  
**Sent:** Thursday, December 10, 2009 4:49 PM  
**To:** Richard Dwyer  
**Cc:** Ogilvie, Carey [Yel]; Spavor, Carrie [Iqa]; Groskopf, Glenn [Reg]  
**Subject:** Meadowbank Water & Mine Waste Management Plans

Hi Richard,

Attached are EC's comments on the above plans. Thanks very much for the time extension on this one!

Best wishes for Christmas and New Years!

Anne

<< File: EC comments Water and Mine Waste Management Plans Dec 2009.pdf >>