

Johnson, Bill H (DNR)

From: Jim Scott <[REDACTED]>
Sent: Wednesday, September 05, 2012 8:21 AM
To: David Blaha; Carlson, Erik (DNR); Al Trippel; Tina Pint
Cc: Houston Kempton
Subject: Re: Cat 1 stockpile "flush"

Dave – thanks and understood

From: [David Blaha](#)
Sent: Wednesday, September 05, 2012 7:39 AM
To: [Jim Scott](#) ; [Carlson, Erik \(DNR\)](#) ; [Al Trippel](#) ; [Tina Pint](#)
Cc: [Houston Kempton](#)
Subject: RE: Cat 1 stockpile "flush"

Jim

Was just sharing the info I had at my fingertips – definitely not a perfect model for NorthMet, but I believe the general trends should still hold true (e.g., small fragments will oxidize quickly – within first 20-30 years – larger fragments will take MUCH longer – so we would expect to see a drop off in load after some initial period

Houston – please let Jim and Erik know if you can answer any of Jim's questions below or if you have any other data from other sites that may be helpful to them in deciding whether to defer putting the geomembrane cover over the Cat 1 stockpile while they have active treatment available

thanks

From: Jim Scott [[mailto:\[REDACTED\]](mailto:[REDACTED])]
Sent: Tuesday, September 04, 2012 11:46 PM
To: David Blaha; Carlson, Erik (DNR); Al Trippel; Tina Pint
Cc: Houston Kempton
Subject: Re: Cat 1 stockpile "flush"

Thanks Dave

I note that this was for 1%S – Cat 1 is .12% max – .006% avg – S Day's work indicates that release rate (per kg) is linear with %S – does that mean that an estimate for Cat 1 would be 1/10 that shown ? or is the analysis presented independent of %S in rock ?

Would this represent an uncovered or covered stockpile ?

Jim

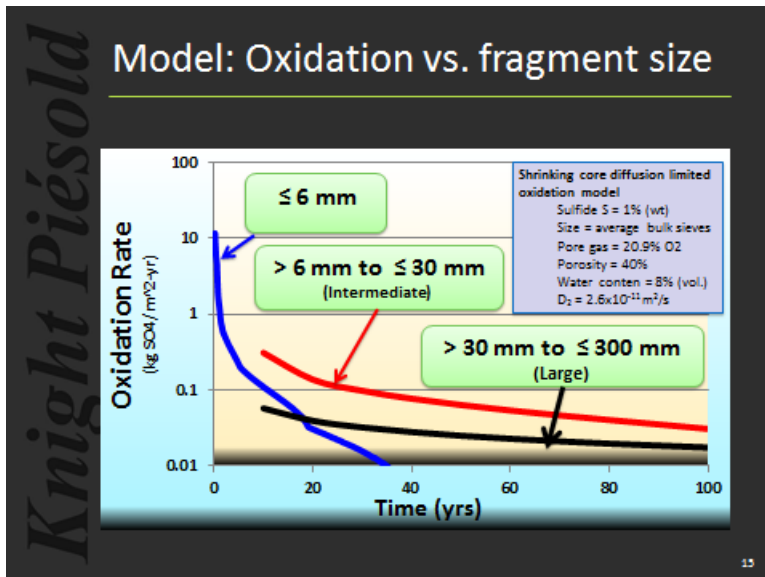
From: [David Blaha](#)
Sent: Tuesday, September 04, 2012 2:47 PM
To: [mailto:\[REDACTED\]](mailto:[REDACTED]) ; [Carlson, Erik \(DNR\)](#) ; [Al Trippel](#) ; [Tina Pint](#)
Cc: [Houston Kempton](#)
Subject: Cat 1 stockpile "flush"

Per our call this morning, here is the graphic from a presentation Houston made relating oxidation to fragment size

I like this graphic because it makes 2 important points:

- The small fragments oxidize rapidly and deplete in the first 30 years or so
- The larger fragments oxidize much more slowly and much of the solute load is effectively locked up in the large fragments for a very long time

I have copied Houston in case he would like to add more explanatory details



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