

HLWYM HEmails

From: Christianne Ridge
Sent: Thursday, February 05, 2004 8:24 AM
To: David Pickett; Paul Bertetti; Roberto Pabalan; David Brooks; John Bradbury
Subject: Re: Intrinsic colloids

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You are right that dissolution in J-13 water doesn't guarantee that colloids will dissolved in other waters, but I do not think DOE necessarily is confusing dissolution with flocculation. Most solids (calcite being a good counter-example) have a higher solubility limit at higher temperature. Wouldn't higher ionic strength also encourage dissolution by reducing the activity coefficient of the dissolved constituents?

>>> John Bradbury 02/04/04 05:28PM >>>

I note that on page 3-17 of TBD #8, DOE eliminates intrinsic colloids from further consideration in colloid modeling. They say that degradation of CSNF may form true or intrinsic colloids but they are likely to dissolve in the groundwater in the UZ. On introducing the metastable colloids to J-13, the colloids dissolved. DOE then says "typical water inside the drift will be at a higher temperature and ionic strength than J-13. Consequently, the colloids will dissolve more readily in the water inside the drift than in J-13. "

I think DOE is confusing dissolution with flocculation here. Just because the colloids dissolve in J-13 doesn't mean they will necessarily dissolve in a different water, especially if the drift water has a positive saturation index related to the colloids. DOE refers to the Waste Form and In-drift Colloids- Associated Radionuclide Concentrations AMR, which may shed some light on this.

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